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THE NEW ERA IN GENERAL SURGERY.*

W. H. ANDERSON, M. D.,

BOONEVILLE, MISS.

For the last decade general surgery has been on the mat before the multiplied specialists, and the battle has been keen for the survival of the fittest. Surgery became so highly specialized that the specialist had plenty of time to sell his one article to the consumer and he depended upon making a long profit on a few sales, rather than on volume of business. The specialist specialized in doing the simplest thing in the hardest way at the greatest possible cost, and in fact measured his success by the enormity of the fee he was able to collect. Enticed by the real success and service of the true specialist, and lured by the artistic salesmanship of the near fake, specialists sprang up over week-ends, and they became very numerous and very highly specialized. The story goes: a man who had a limited acquaintance in the city, called the only orthopedic surgeon he knew when his car was wrecked and his wife got a leg broken, to come at once—and the specialist asked "which leg," and he replied "the right," whereupon the specialist said, "I am sorry, but you will have to call another doctor," "I specialize on the left." And at a social function of some formality, an infatuated young lady suavely asked a young man "and what is your profession?" "I am a Naval surgeon." "My, it is remarkable the extent you surgeons carry your specialty nowadays."

The smoke of battle is clearing away. The real specialists have won by making general surgery a specialty. The confines of general surgery have become more definitely defined, and the general surgeon is striving to become more efficient within his confines. General surgery becoming a specialty, marks a new era in this field, but there is even more than this taking place. For a while it was very discouraging and looked like the general man would be entirely rejected by the specialists, but now he is becoming the corner stone for all surgery. This should be encouraging to us, as our own Mississippi of farms and small towns is especially adapted to general surgery. We now have within our confines some of the most brilliant general surgeons in the nation, only their work has not been done on the stage under the high-powered spotlight.

In general surgery it is much harder for a man to qualify. He is like an assembly man for a new car. It is easy enough to find a man who can put on a wheel or a windshield, or tighten the brakes, but when it comes to getting all the parts in the right relation, so the machine will last and won't rattle, it is different. The general surgeon must needs be a man of broad mind, versatile, and thoroughly educated. He must know when special surgery is indicated, and must be fair enough with the patient and his client to recommend the specialist when his invaluable services are needed.

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

General surgery in the new era will be constructive, conservative and preventive. The patient's life is and will always be the greatest consideration of the general surgeon, but saving the life and adding years to it is not enough now, volume of life must be added also. There was a time when two to four days was considered ample time to operate on a case of appendicitis, and in many instances even if the patient lived he was handicapped with adhesions, or rupture or maybe a weakened heart muscle from the toxins. But in this the new era the average case can be diagnosed in five to ten minutes, and constructive surgery looks down the line of efficiency and the case is operated within six hours of the onset. Instead of waiting to cure a bad case of gonorrhea or soft chancre fortified behind a prepuce a yard long to do a circumcision, it will be done when the baby is from five to seven days old. Instead of waiting ten to twenty years for the nerve lines to be burnt out and the entire human organisms brought down below par from a bad laceration of the perineum, the general surgeon must take an active part in obstetrics, at least to the exent of being closely affiliated in a cooperative way with the general practitioner, and all lacerations will be repaired at the time of child birth. Under surgical conditions the healing results are practically as good, the post-operative pain is much less, the scar tissue is reduced, and hence that patient can stand another pregnancy with less danger of injury, and many aches and much nervous energy are prevented and conserved. The general surgeon should take time and be paid for it to inform and educate the people to have surgery done when the cure is more certain and the efficient results are greater. An operation for hernia is simple in the beginning in the average case, the cure is complete, and the percentage of recurrence is low; but the possibilities of the neglected case are not pleasant to think upon. The wearer of a truss has his physical efficiency reduced, his mental morale is not always up to par, and as he goes about his daily work he is sitting over dire and dynamic possibilities. The rupture becomes larger, scar tissue forms, the pre-disposition to appendicitis is great, to strangulation and intestinal obstruction is still greater; then if the patient is saved the physical efficiency in a big per cent of the cases is lowered, and dangerous possibilities still exist, and an added aggrivation in the form of adhesion ever remains as a Job's comforter.

In the new era, conservative surgery is and will be in vogue. Conservative surgery has made greater strides in the pelvis perhaps than in any other field. Up until six or eight years ago ovaries, tubes and uteri were sacrificed at the least provocation. Gonorrheal infection gave rise to a big part of pelvic surgery. Much of this was not constructive surgery. It was destructive, leaving the patient less fit and many lives were actually lost. In this field of surgery conservatism and education has been a great step forward. Only a few years ago the gall bladder in the higher circles of general surgery, scarcely escaped any more than did the appendix. It was nearly always bad if no other outstanding cause could be found for the symptoms. It seems now that the gall bladder is held for only a small part of the offense. In ulcer of the stomach and intestine, at last the patient is given rest and a sensible diet and focal infections are removed before quite so much major surgery is done in the form of resections and gastroenterostomies. The indications are that within two or three years the radical operation of the breast will be passing out as has the destructive and often fatal Wertheim. Total hysterectomy is scarcely even indicated now-a-days. Radium is the treatment of choice in carcinoma of the cervix; and even with a firboid uterus and a lacerated and everted cervix, it is usually advisable to leave the portion that anchors the ligaments and contains the most abundant blood supply. In tuberculosis of the kidney conservatism is again gaining ground. Another marked and commendable form of conservatisms is seen in what we might call the field of relief sur-

gery, as in advanced cancer of the breast, cervix, back of tongue, et al. The surgeon now does and must study his patient from top to bottom and determine by the most accurate facts he can obtain and by his best process of reasoning whether or not the patient will survive the operation and what will be the status of that patient a few months later. If the odds are against the patient, then the operation is left off and relief is sought by other means if it can be. This is a great saving to the patient, usually pleasing to the relatives and the surgeon should be commended. The ideal is to so diagnose and sum up the latent powers of the patient that when an operation is done, the patient will always survive it. When it comes to removing foci of infection radicalism is the most conservative many times. The work of Rosenow of the Mayo Clinic on focal infections has not yet been estimated in its great importance. So the man who is radical in removing foci of infection may be the most conservative in reducing and preventing surgery.

Up to the time of Pasteur, medical progress was slow. We gained some ground by trial and observation. Since the Pasteur age, we have had a basis for curative and preventive medicine. For fifty years curative medicine received the greatest attention. We are now in the age of preventive medicine. It promises great advancement now that the conflict between the practitioner and public health officer has practically vanished. The staunchest friends now to preventive medicine is and will be the general practitioner. As yet preventive surgery has received but little attention. It will though. It must. And the general surgeon is to be the champion in this new field. If he is successful he will be called the most blessed of all. But the question is asked "How can you prevent an operation when you do not know the cause. Can you by taking thought prevent appendicitis?" If we think hard enough in the right direction maybe we can. It seems that some people and some nations are more susceptible to it than others. Hence we have the problem of heredity, climate and mode of living. There is also a strong probability that focal infections play an important role in the production of appendicitis as well as ulcer of the stomach, intestines and gall bladder infection. So by the help of the nose and throat specialist and the dentist, many more serious operations might be prevented. It is very probable that hook worm infection may predispose to appendicitis and any patient who has ever set foot on sandy land in the South should not go unexamined.

Good obstetrics without doubt may prevent much surgery. And how may this be obtained? Chief among all by being more sparing with pituritin, and waiting a little longer to use forceps, by confining more patients in the hospital and using gas or chloroform at the time of delivery, are some of the ways.

In the entire field of surgery there is one example after another where a little surgery in time may save a big operation later. In carcinoma of the cervix or cancer of the breast this is thrice true.

In the field of traumatic surgery it has been found that in automobile wrecks the greater part of the damage has been due to shattered glass, hence the "non-shatterable" windshield.

And there is the ill-fitting shoe that gives rise to bunions, pain, discomfort, bad temper, expensive operations. Here is an opportunity for preventive surgery.

But as in the field of preventive medicine, preventive surgery calls for special training, for annual, bi-annual and sometimes monthly examinations. The surgeon must be paid for his prophylactic advice. The general public must catch the spirit of the new era. How is it all to be brought about? I don't know. I am asking you to think along this line, to do your part to educate your clientile. The laity must be educated to its importance. The profession will have to furnish some of the facts to the lay press and solicit its help.

The public is not educated to the importance of early operation, much less prophylactic surgery. There are hundreds of people who are prejudiced against operations and hence will not have them regardless of the price. There are thousands who would have them earlier, but feel unable finanicially, and must be driven to it because of inability to work. Some people think that an operation costs too much, too many don't pay anything regardless of what they are charged. The people think the doctors are getting rich by exorbitant prices. The doctor knows it is not so, and feels like quite a per cent of the laity has been taught to fear God and beat their "doctor bill". Doctors give away more of their time and services than any other profession. So we have a big field for new and constructive thought. It is a problem for the entire profession and for the entire people.

The general surgeon, especially in Mississippi, whose field of endeavor looked as though it would be confiscated by the specialist, has become the corner stone in the new era in surgery. He must have special talents and special training. He must not under-estimate the value of the specialist, and he must be very closely affiliated with the general practitioner. He must be a man who has enough knowledge of the specialties to know when to direct his clients to them and he should have had training as a general practitioner. This training no doubt accounts for the great number of successful general surgeons in this association.

The general surgeons will rise to the level of the new demands and do their part. But other agencies must cooperate. Chief among those are our medical schools. They must get a vision of the work before us and must train the men to do it. The most of them have been educating away from the field of general surgery rather than to it. In Mississippi the great field that is white unto harvest in general surgery is in the small town. The medical schools have been too prone to employ the supertechnical man who would starve to death in general practice and he proceeds to cram down the student his memorized theories and speaks always in terms of big hospitals, interns, nurses and orderlies and straight way mis-educates the graduates to the city, to the bright lights, to the specialties. The general surgeon needs to put in at least one month out of each year studying in school, not simply wisely looking on. The college professor needs just as much to put in a month in Sullivan Hollow in general practice or doing surgery in the small hospital on Vinegar Bend.

The state, the social economist, and the philanthropist must lend a helping hand. I would not spend any less to get rid of the ticks in Mississippi, but I would spend more if necessary to establish small hospitals throughout the State of Mississippi and give more aid to the general practitioner and to the general surgeon in carrying out his high and laudable ideals and promoting his efficiency in the practice of curative, of constructive, of conservative, of preventive surgery, thereby making life longer and broader and stronger, and relieving pain and distress, and leaving instead, happiness and prosperity.

TREATMENT AND PREVENTION OF SCARLET FEVER BY SPECIFIC ANTITOXINS AND SERUMS—The paper by John A. Toomey, Cleveland, is a review of the literature and an analysis of Cleveland data. He calls attention to the fact that in most papers, the statistics of mortality are general and are usually bare of explanation. The reasons patients die are very important and should be considered, and the more considered, the less obvious are the beneficial results of antitoxin since it may be that hospital patients have such admission handicaps that nothing could save them. From Jan. 1, 1922, to Aug. 1, 1926, 2,058 scarlet fever cases were admitted to the Cleveland City Hospital. Sixty-five patients, or 3.1 per cent, died. Thirteen of these were admitted within forty-eight hours after the onset of their symptoms and only three of these were toxic uncomplicated types. Six of these patients had complications, such as burns, and, curiously enough, four were given scarlet fever antitoxin within twenty-four hours of the onset. When the case fatalities are analyzed, it is difficult to see just how antitoxin would prevent death and cut down the mortality rate. All types of reactions occurred—early thermic responses, thermic responses with urticaria and edema, late urticaria and an anaphylactoid phenomenon with three deaths due to or hastened by antitoxin. In most of the treated cases there was far more illness from the effects of serum sickness than from the scarlet fever. Is it worth while, then, asks Toomey, to inject all patients in the face of the mildness of the present type of scarlet fever, just to see them better a day or two sooner and have serum sickness, or would it be better to leave them alone and take our chances on the average course of the disease? He believes that the ultimate fate of antitoxin therapy will be settled only in an epidemic with a high mortality rate. Although Toomey has not been much impressed with the value of antitoxin either in treatment or in prophylaxis, he is extremely enthusiastic about the results he has obtained by the active immunization of susceptible patients in the manner and according to the methods advocated by the Dicks. This routine procedure has practically eradicated scarlet fever among the resident population of Cleveland hospitals.—Jour. Am. Med. Assn., 91: 1599-1603, 1928.

THE BETTER PHYSICIAN*

E. B. FRENCH, M. D.,

McCOMB, MISS.

I want to thank you for the honor you have shown me, and assure you of the pleasure and benefit it has been to me to have served you this year. (That remark is just as true as it is trite.) You have not been benefitted as much as I, for I have been more forcefully impressed with the benefit and necessity of organization work, therefore, I am a better member of this Society.

There is nothing new in this paper, and nothing deep, naturally, but I am going to take the liberty of reiterating some of the fundamental facts and principles with which we are all imbued though they are often overlooked in the course of a busy routine.

First, of course, the patient is the prime consideration and our business is to get him well. Lets start off with the Golden Rule, reverse the situation and ask ourselves what we would do or what we would have done for ourselves under the same conditions. Remember that when we have a sick body we also have a sick mind. They both need treatment, calling for both the art and science of medicine. Art is directed towards the sick mind, science to the sick body; being conscience of the power of mind over matter.

We probably don't apply the *art* enough, and charlatans use it too much, neglecting science. There's a happy medium between the two.

Confidence that the physician inspires is part of the art. What he actually combats physically is done by science.

COMPARISON:

ART	SCIENCE
Has a method	Has a system
Looks to function	Looks to structure
Acts, is unconscious	Speaking, is conscious
Uses one eye	Uses the other eye

*Presidential Address, read before the Tri-County Medical Society, December 11, 1928.

Wisdom in medicine uses both eyes getting a stereoscopic view: discerns solidity as well as surface, and seeing both sides uses mind and body for the cure of the one man. One eye is philosophic and observant; one theoretic and one practical; one seeing the invisible and one the visible. This constitutes the double vision of the practical man. We need good common sense in everything and uncommonly good sense in medicine.

If luck has dealt a good hand play it well, if not, play the poorer hand for all it is worth.

We as physicians should know *human* nature as well as our profession. And be mindful always of *nature's* effort to cure disease. Hippocrates first realized and taught this. To assist her when she's right and coerce her when she's wrong. Study to determine the point where nature ends and medicine must begin in the cure of disease. One needs a grain of medicine and an ounce of wisdom, the other an ounce of medicine and a grain of wisdom.

Prof. Nathnagel says: "Only a good man can be a good doctor." I want to ask, Why are doctors not good to each other? Is it because of sensitiveness and easily wounded feelings if a patient has a preference for the other man? There's no accounting for tastes in the selection of a doctor any more than there is in the selection of a wife or husband. We are too *"big"* to be *"little"* to each other. Nothing is gained by antagonism but much is gained through harmony.

In this connection I want to express my regret at the apparent passing of professional ethics; it is being relegated to the past along with Southern Chivalry. We see it yet in the bigger men, and in charity cases.

Is it because we are getting too commercial and eager for the dollar? I'm saying nothing against collecting for what

we do. We should and must collect closely in order to pay promptly, that is a duty to ourselves and families, but we also have a duty to our confreres individually and to the profession at large. Mention has been made of our duty to the patient and in this connection lets ask ourselves if we observe that principle when we attempt things we are not prepared or trained to do, doing excellent things badly and bad things excellently. Let's not be averse to consultation. A confrere is "big company" when you are in deep water, if the two can work together, (give and take.) Otherwise, it is better to work alone for responsibility is shifted and not divided.

A shortcoming we too often have is failure to make a sufficiently thorough examination. Proper examination has a two-fold purpose: the psychic effect on the patient, the information we gain from it. Failure in this is not fulfilling our duty to the patient. We get in bad, and get the profession in bad too. Somebody else will check us up, give a different opinion and treatment, and probably get results.

Since we must have our differences of opinion lets not air them too much. Look at the disrepute alienists have gotten their branch of medicine into.

Lets remember, when working on diseased bodies that they are all inhabited by minds that have variable emotions, normal and abnormal, generally abnormal. The sick, unless their sensibilities are blunted by disease, are the most sensitive and selfish of mankind. We must attempt, in a measure, to fathom each patient's mind, discover its peculiarities and direct our efforts in harmony with it. Let hope, expectation, contentment and that mysterious and powerful force called faith, and other psychological agents be our constant aids, for they may each exercise legitimate power, and may each impart the greatest amount of benefit to the sick, and confiding comfort to those around. Coleridge considered him the best physician who inspired most hope. Hope creates ideas, generates new expedients, brings up useful reflection and leads to fresh endeavors. Every sick man is our half brother and every sick woman our half sister.

There are two kinds of legitimate reputation physicians may acquire: a popular one with the people and a higher or professional one with his confreres. Proper desire for both keeps us well balanced. We make our living by means of the one; we keep ur standard high by means of the other. Seek to enhance the profession in public esteem and defend fellow physicians and the profession when either is unjustly assailed. Failure to defend the reputation of an absent brother when justice demands you to speak is not only ignoble but implies a quasi-sanction of the libel, and a broken reputation is like broken china: you may mend it but it always leaves a scar.

Most of us belong to one of two classes: "Unsuccessful, full of learning, this one dies of want of bread; if successful, full of earning, this one dies of work instead." This is another case wherein the middle ground is the place of choice, or we find ourselves in that array of doctors who never get bread till they have no teeth to eat it.

We can guarantee nothing except that we know our duty and will do it; if the patient will do his best we will do ours and await results. The practice of medicine is not an exact science nor is life a definite quantity. All between the cradle and the grave is uncertain. Every case presents a chain of probabilities surrounded by a circle of possibilities, hence the uncertainties with which we must deal, and the loop-holes needed in prognoses.

"Wisdom is the sunlight of the soul", and there is perpetual delight in the possession of knowledge—but what we don't know is a great pity.

In closing, I want to present this paragraph from Richard Steele:

"Tradition is not a fetish to be prayed to, but a useful record of experiences. Time should bring improvement, but not all old things are worthless. We are served by both the moderns and the ancients. The balanced man is he who clings to the best in the old, and appropriates the desirable in the new."

FOOD CONTAMINATION.*

D. G. RAFFERTY, M. D.,

PASS CHRISTIAN, MISS.

Among the dangers we pass through blithely three times a day is that of food contamination. These dangers can be traced in most cases to either someone forgetting to do something or someone doing something wrongly, from the source of our food supply to the table. In other words, the human equation plays a great part in the contamination of our food stuffs. Fifty years ago our knowledge of how food became contaminated was both meager and unscientific. Contrasted with our knowledge of today this branch of preventive medicine has shown a healthy progress. Witness a wise government supervising food stuffs through federal, state, county and city agencies. With your permission I shall tell you briefly the story of food contamination and some of its results as it appears today.

HISTORY.

Problems of the preservation of food stuffs have occupied the human race from earliest times. The housewife of 5,000 years ago was as much concerned in the preservation of meat, milk and grains as the housewife of today. The ancient housewife was more concerned, however, in the prevention of waste, whereas the modern one is concerned not only with waste but also with the prevention of many diseases of which she is cognizant. While contaminated food stuffs had been under suspicion for a long time as producing disease, it remained for Gartner to definitely establish the fact. In 1888 he found a bacillus in association with a meat poisoning epidemic. He named it the bacillus enteritidis. A cow sick with diarrhea had been slaughtered and the meat sold for food. Of the persons eating the meat 57 became ill. As a result of this study Gartner opened up a new genus of micro-organisms, known as the Salmonella group. Of this Group, comprising some nineteen organisms, we shall hear more of later.

INCIDENCE OF ILLNESS RESULTING FROM CONTAMINATED FOOD.

Despite the rigid supervision of today disease conditions still arise from the use of contaminated foods. Illnesses occur more frequently than is generally supposed. It is difficult to obtain reliable data as to the frequency of its occurrence. Contaminated food produces many mild cases of poisoning. Symptoms of nausea, vomiting or diarrhea subside without treatment. Cases of this nature are never reported, therefore we have no reliable statistics on the subject. When groups of individuals fall sick shortly after eating, such as soldiers, sailors, or picnickers, it is a different matter. Great publicity is given to the incident by the newspapers and investigation of suspected food is promptly under way. This is a sort of locking the stable-door after the horse is out.

SEASONAL INFLUENCE.

Food stuffs of all kinds become contaminated more readily in the hot months than at any other season. Flies, insects and dust aid in bringing about putrifactive processes. In homes without refrigerators we find a high morbidity from the ingestion of contaminated foods.

PREDISPOSITION AS A FACTOR.

Children, debilitated persons and the aged are more susceptible to the effects of eating a contaminated food than other classes of individuals. Children have been known to become desperately ill from the ingestion of a contaminated article of diet

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

when adults partaking of the same food escaped entirely.

ETIOLOGY.

Exciting causes:

(1) Articles of diet contaminated with bacteria or other micro-organisms.

(2) Poisonous plants mistaken for edible varieties and poisonous milk due to cows eating certain plants.

(3) Parasites, ingestion of the ova of taenia solium or saginata and the ovoid capsules of the trichinae.

MANIFESTATIONS AFTER INGESTION.

The ingestion of a contaminated food may manifest itself in the following ways: Food poisoning, food intoxication and food-borne infection. By food poisoning is meant the condition resulting from the ingestion of animal or vegetable foods contaminated with bacteria or other micro-organisms. It may include the toxic symptoms following the use of an adulterated food. Food intoxication means the toxic symptoms following the ingestion of a food containing chemical poisons or toxins originating from bacterial action outside the body. The term food-borne infection means illness resulting from the ingestion of food contaminated with organisms causing infectious diseases, as typhoid fever, scarlet fever, diphtheria, etc. It must be remembered that sharp lines of distinction between food poisonings and food intoxications cannot be drawn always, both factors may be operative at the same time.

FOOD STUFFS MOST FREQUENTLY CONTAMINATED.

It is entirely possible for any article of diet to become contaminated, thereby causing symptoms of varying degree of distress. Certain foods, however, are more prone to contamination than others. The food stuffs under the greatest suspicion are: meats of all kinds, fish, oysters, shell-fish, milk and its derivatives, such as ice-cream and cheese. Canned goods have been incriminated many times in the past. The canned product of today is more than reasonably safe if certain simple precautions are taken.

While specific organisms are responsible for the greater number of food poisoning cases, poisonous plants are to be considered. The roots of the water hemlock (cicuta maculata) are very poisonous and are sometimes mistaken for horse-radish, artichokes or parsnips. Deaths are reported yearly from this cause. The average man knows the danger of mistaking the poisonous toadstool from the mushroom yet deaths continue to be recorded from this cause. The toadstool contains the powerful poison muscarine, giving symptoms similar to acute yellow atrophy of the liver. Jordan reports that in a ten-day period in September, 1911, twenty-two persons were killed from mushroom poisoning in the vicinity of New York. Of importance, too, are poisons which animals take through feeding on poisonous plants. Meadow saffron, while not injurious to the animals themselves, makes their milk poisonous, producing in children the so-called cholera infantum, a disease of which diarrhea is the chief symptom. Poisoning through milk may also occur from the deadly nightshade (atropin), Christmas rose (veratrin), hogsbin (hyoscamin), and thorn-apple (atropin and hyoscamin). These substances appearing in animals milk are the cause of considerable sickness.

CONTAMINATION OF FOOD BY PARASITES.

Food stuffs are not contaminated with the ova of the taenia solium or saginata as frequently today as in the past. Proper preparation of food by thorough cooking has greatly reduced these infestations. The same can be said of the ovoid capsules of the trichinae.

GENERAL SYMPTOMS.

The tragedies resulting from the ingestion of poisonous foods differ in degree. It may mean the momentary vomiting of an infant to the death of an adult in a space of ten hours. The factors determining the degree of illness are: the susceptibility of the individual, the type of in-

fection and the quantity of pathogenic germs or toxins taken into the system. If a number of persons partake of the same food, some may not be affected at all, others may develop mild symptoms while still others may be seriously or even fatally poisoned.

The onset of symptoms is usually from three to ten hours after eating. In some cases, however, the symptoms may be delayed from twenty-four to forty-eight hours. Sometimes we see vomiting occurring shortly after the ingestion of contaminated food. In cases where vomiting and diarrhea occur immediately or shortly after eating, the outlook is better for the patient as he has greatly relieved the alimentary tract of toxigenic material.

In mild cases of food poisoning, we find headaches, dizziness, nausea, vomiting, diarrhea or constipation and sometimes cramps in the abdomen. Temperature is absent and but little alteration in the pulse is noted. These mild cases usually subside in twenty-four hours time.

The moderately severe cases of food poisoning differs not only in the degree of the above named symptoms but also in the fact that we find temperature and alteration of pulse rate in a pronounced form. Abdominal pain and tenderness may be very distressing. Dysenteric stools and prostration characterize this type. The duration of the temperature is from two to three days.

In severe cases the picture changes. Here we see not only a violent gastro-enteritis but also evidences of profound shock. Vomiting is continuous and later on becomes blood-stained from retching. Diarrhea is severe and accompanied with tenesmus. Profuse bloody discharges from the bowels soon intervene. In the severe toxemic type the temperature may be subnormal. In most cases the temperature reaches from 103 to 105 degrees F. The pulse-rate is from 120 to 180. These patients show evidences of pronounced dehydration and in fatal cases delirium or stupor precedes death.

DIAGNOSIS.

The diagnosis of food poisoning, where groups of individuals become ill after partaking of the same meal, offers little difficulty. In fact, the diagnosis is made in many instances for the physician under whose care these cases fall. I recall a mild outbreak of food poisoning on the U. S. S. destroyer Breck five years ago. Thirty-six men out of fifty-five were taken sick one half to one hour after partaking of the same meal. They were convinced that a hash made of meat and potatoes had poisoned them, although it was never proven.

On the other hand, to make a diagnosis of food poisoning in a single case where others have eaten the same meal, is very difficult Food poisoning symptoms stimulate grave intra-abdominal conditions such as appendicitis, perforated gastric ulcer, gall stones, etc., also intra-thoracic lesions as angina pectoris with pain referred to the epigastrium. Intra-abdominal and intra-thoracic diseases must be excluded definitely before food poisoning can be considered.

One of the fallacies that formerly occupied an important place in medical folk lore was the so-called ptomaine poisoning. Selim, an Italian chemist, first introduced this term to designate certain toxic substances resulting from the processes of decomposition and disintegration of albuminous materials. As ptomaines are chiefly developed during late putrifaction they have been termed putrifactive alkaloids. A food contaminated with a ptomaine would be so putrid and stinking that there is little likelihood of human consumption. While the term ptomaine poisoning has been popularized it should be abandoned. It means as much to the physician as the term acute indigestion, which is exactly nothing. Newspapers continue to report sudden deaths from this cause, whereas, if the truth were known, the real

cause, no doubt, would have been found in the abdomen or chest. Public health officials should reject ptomaine poisoning as a cause of death.

PATHOLOGY.

In fatal cases where the suspected cause of death is due to the ingestion of contaminated food we should demand an autopsy. The reported autopsy findings are in accord—namely, acute inflammatory lesions of the stomach and intestines. The mucosa is red and swollen and is covered with thick mucus. Blood may be found throughout the gastro-intestinal tract either free or punctate spots of hemorrhage. Under the microscope degenerative changes are found such as cloudy swelling with disintegration of the epithelium and glands.

MEAT POISONING.

The meat of very young animals should never be eaten. The sale of young or "bob veal" is prohibited by law. It is indigestible, innutritious, and decomposes very quickly after slaughter. High game is meat that has been exposed to the air for a period of several days. It becomes contaminated with putrifactive bacteria and is unfit for food; yet if thoroughly cooked it may not be necessarily poisonous. Frequently one sees a greenish or bluish discoloration on the surface of a piece of meat, known as mildew. This is especially true with ham and bacon. It is caused by a parasitic fungus of many species, the spores reaching the meat by means of the air. This surface mildew is ordinarily non-pathogenic and requires only the severance of the portion to prevent further growth. The saprophytic processes occurring in meat due to maggots and mites seldom escape our attention.

Meat may be infected by disease before the animal is slaughtered or become contaminated after the slaughter by improper handling. A great deal of poisoning through meat is due to eating meat of infected animals, diseased before slaughter. Many bacteria are pathogenic for both man and animals. The meat of animals infected with antrax produce the same infection in man; the same is true for tuberculosis, actinomycosis, septic pyaemic diseases and perhaps para-typhoid.

In recent years much blame for food poisoning has rested on the salmonella or para-typhoid group of micro-organisms. At one end of this group are the human para-typhoid organisms represented by the B. para-typhosus A and B, while at the other end are such organisms as the B. enteritidis, B. suipestifer, B. aertrycke, and the B. abortus equi, known as the animal para-typhoids. The human para-typhoids are primarily bacilli of human infections and pass from an infected human being to a healthy one in precisely the same way that B. typhosus does. B. para-typhosus A. and B. appear strictly limited to the human host, never having been found in infections of the domestic animals or in house vermin. The animal para-typhoids have been recovered from ailing animals. They have been recovered frequently in autopsies of food poisoning cases, and may even transmit true infection. Of the animal para-typhoids the B. aertrycke seems to be pre-eminently the organism of food poisoning. By far the larger number of para-typhoid cultures isolated from typical food poisoning outbreaks and completely identified by modern methods belong to this type. Jordan of the University of Chicago states that ten of the food poisoning strains in his collection are of this species, while Sauvage and White in their study of 100 recent outbreaks of food poisoning in Great Britain record a similar high proportion of B. aertrycke. The history of the outbreaks of food piosoning in which the B. aertrycke has been found often fails to present satisfactory information as to the source of the specific contamination. In instances reported by Sauvage and White such diverse articles as milk, canned tomatoes, beef brawn, cockles and canned apricots were suspected as the vehicles of infection. The frequency with which food stuffs of

other than animal origin are concerned lends countenance to the belief that contamination of food by rats and mice may be an important factor Contamination by human carriers of B. aertrycke is a possibility but remains to be proved.

Both human and animal para-typhoids may cause food poisoning. The supposition is that under certain conditions they produce a preformed toxin accounting for the rapidity of onset of symptoms after the ingestion of the contaminated food.

Meat poisoning occurs more frequently in communities or countries where meat is eaten in raw or half raw forms. Pork and bologna sausage, ham, bacon, and other smoked meats stand first on the list of suspicious articles of diet. Under-done meats may harbor pathogenic organisms and their toxins which have not been reached by a sufficient amount of heat to either kill them or render their toxins harmless. A well-cooked meat contains no living bacteria, and it has been found that heat greatly attenuates the strength of toxins if present. Osler makes the statement that mutton and lamb thus far have never been implicated as a cause of food poisoning.

BOTULISM.

Botulism may be defined as a food-borne intoxication due to a pre-formed toxin of the Bacillus botulinus. It is a distinct disease in itself, running a definite course with characteristic symptoms. Fortunately, it is a rare disease. In the Journal of the American Medical Association, February 13, 1926, a special article, discusses the frequency of botulism, stating that there have been reported in the United States and Canada from 1899, to date, and including one outbreak from England, 147 outbreaks, or a total of 504 cases with 337 deaths, giving a case mortality of 67 per cent; fifty-four outbreaks have been proved toxicologically and bacteriologically. Geiger, Meyer and Dickinson's names have been closely associated with botulism, and to them are we indebted for the above summary.

It must be recognized, however, that food may be somewhat detoxified by heating or warming up just before being consumed, and the strength of the toxin so reduced that the mild cases resulting may be over-looked or not diagnosed as botulism.

Formerly canned meats and sausage were looked upon with greatest suspicion as the vehicles for this intoxication, whereas today home-canned vegetables, such as string-beans and corn, are more blameworthy by far than any other foods.

We make the diagnosis of botulism from the nervous symptoms. At first the patient is conscious of a tired feeling, his vision becomes impaired or he may see double. Prostration occurs early and may increase rapidly. Difficulty in swallowing with thirst may be pronounced. A few days later the paralytic symptoms become aggravated. The facial muscles, likewise those of the neck, shoulders and arms become paralyzed. Finally, the muscles of respiration are affected, death resulting from respiratory failure.

MILK CONTAMINATION.

Milk is a universal food and becomes contaminated more readily than any other article of diet. As a culture medium for bacteria it has no equal and the way in which it is handled renders it very easy of contamination. The milk of healthy cows is free from bacteria inside the udder, but excrementitious matter, bacteria and dirt to a greater or less extent are washed off the udder into the milk during the process of milking. The bacterial content of milk may be increased through lack of cleanliness and by dirty milk cans. Not the number of germs but the species is of importance, *e. g.*, the species producing milk fermentation is harmless (sour milk, butter-milk).

The following milk defects are due to germs which mix with the milk during or

after milking: sour milk (B. lactis); blue milk, a state occurring within 18 to 36 hours after milking, due to the B. cyanogenus, in dirty stables, especially in spring and summer; red milk (B. lactis erythrogenes); yellow milk (B. synxanthus), appearing in boiled or curdled milk and changing it into a brown, yellow-like watery fluid; and slimy milk, due to the action of several bacteria, a condition where the milk is of a slimy consistency. The above mentioned bacteria are saprophytes and they may cause either a food poisoning or a food intoxication in sensitive children. Their manifestations are always intestinal disturbances.

Contamination of milk occurs most frequently from outside sources. Flies, dust, unclean vessels and dirty hands on the part of the milker, are responsible for the transmission of much infective material. Then, too, human carriers of B. coli communis, B. typhosus, B. para-typhosus, B. dysenteriae and many other micro-organisms render milk unfit for human consumption.

Tuberculosis occurs almost as frequently in cattle as it does in the human race. The bovine bacillus attacks the cow in two ways, diseases of the udder and general tuberculosis. In tubercular disease of the udder the milk contains enormous number of bacilli. This milk is not fit for human consumption and should be boiled even if given to animals. In general tuberculosis the bacilli circulate in the blood and pass into the milk. Raw milk containing the bovine type of bacillis is thought to produce tuberculosis in young children. As to the incidence of tuberculosis in cattle the following report is rather illuminating.

In the American Journal of Public Health, May, 1927, Tonney, White and Danforth published the results of their survey of the Chicago dairy district for the years 1923, 1924 and 1925. Of a series of 258 samples of raw milk destined for the Chicago market, 9 or 3.5 per cent were found to contain living virulent tubercle bacilli of the bovine type. Of 73 samples of similar raw milk collected in one county of the Chicago dairy district, 5 or 6.8 per cent were found to be actively tuberculous. An estimate based on these experimental data of the amount of tuberculous milk sent to the Chicago market, indicates that in the three years prior to Jan. 1, 1926, approximately 43,000 quarts per day or over 15,000,000 quarts per annum contained living tubercle bacilli.

Two efficient methods for the control of bacterial contaminations of milk are established in the United States—namely, the pasteurization of raw milk and the tuberculin testing of cattle.

CONTAMINATION OF ICE CREAM.

Many severe epidemics of both food poisoning and food-borne infections have been traced to ice-cream. Pathogenic bacteria contaminating the milk from which the ice-cream is made is the cause. Until the same precautions—namely, the pasteurization of milk—were taken, epidemics of illnesses frequently occurred. Perhaps the most severe epidemic of typhoid fever traced to ice-cream occurred in Birmingham, Ala., in 1915. Lumsden of the U. S. Public Health Service found the source of the infection in a large ice-cream establishment that had neglected to pasteurize their milk.

CONTAMINATION OF CANNED FOODS.

Almost every kind of food is put up in cans at the present time. The canning industry in the United States alone is enormous and growing yearly. Modern methods of canning have reduced the chances of contamination of their products to almost a negligible point. No doubt many cases of food poisoning in the past that have been blamed on a canned product have been unwarranted. Instances where a can has been opened, partly consumed, and then set aside to become contaminated from some outside source have occurred frequently. The blame, then, has been put on the canner, whereas, had simple pre-

cautions been taken, no damage would have followed.

Occasionally living micro-organisms are left in cans due to insufficient heat having been used and the product put on the market. If the bacteria are gas producers the ends of the tins sooner or later become blown, *i. e.*, bulge out. Leaky cans, too, are found; the food quickly becomes contaminated and unfit for consumption. Little danger results from these conditions as cans of this type are palpably unfit for use. Canned foods sometimes contain the salts of lead and tin. This is brought about by these metals going into solution by the action of the weak acid contained in the preserved food on the can. The action of these metals brings about a dark discoloration of the food in the can and renders it unpalatable and unfit for consumption. Food poisoning from this cause rarely occurs.

CONTAMINATION OF OYSTERS AND SHELL-FISH.

The oyster is one of the scavengers of the sea. Taken from unpolluted waters it is a harmless article of diet. On the other hand, when the oyster falls into bad company, such as the B. typhosus or the B. coli communis it becomes a highly dangerous food. For many years it has been recognized that oysters transmit infectious disease and under certain conditions are the cause of food poisoning. In general it may be said that oysters are as pure as the water from which they are taken. When taken out of salt water they are quickly decomposed by bacterial fermentation, hence the care shippers of oysters are required to follow. In New York City the sale of oysters is under special Health Board supervision to guard against infection. Readily we recall the epidemic of typhoid fever along the Atlantic seaboard two years ago. The source of the infection was traced to oysters. It was gratifying, too, to see how efficiently the Boards of Health of various inland states placed an embargo on the importation of oysters across their borders.

Lobsters, crabs and shrimp constitute a wholesome food when absolutely fresh. They are scavengers of the sea like the oyster and crabs, and when they are not thoroughly cleaned or imperfectly cooked, they may be poisonous from contamination with putrid matter, although their own flesh is good. Lobsters are highly poisonous to some persons even when fresh, and especially if eaten with other food may excite nausea, vomiting, and gastro-enteritis. In others they may cause urticaria or intensify existing skin affections, such as eczema. Lobster may be eaten in conjunction with any other food, providing both are fresh, without causing distress.

In reviewing this subject one is impressed with certain outstanding features; the necessity of proper preservation and preparation of all articles of diet; the importance of correct diagnosis of food poisoning; and the necessity of further work along bacteriological lines.

DISCUSSION.

Dr. D. V. Galloway (Clarksdale): I just want to express my appreciation of this wonderful paper. It has been so well covered that I do not see how anything could be added, but how can we apply the knowledge that has been given to us in this paper? We in Mississippi are having food poisoning—certainly we are—we get contaminated food; we get food that is causing sickness right straight along. Now if we could get the knowledge in that report to the epidemiologists of the state, then we could work out just where we are getting this infection. We could contribute wonderfully to the literature on this most important fact, and I just hope that we will apply the knowledge that was given us in this most excellent paper.

Dr. F. M. Smith (Vicksburg): Perhaps we go too fast in saying that we have these acute attacks. We do not recognize the fact that sometimes unwholesome food taken into the body is having all the time its effect. Perhaps it is aided by the extra burden placed upon our bodies, by the introduction of foreign or unwholesome food. We appreciate the fact that pasteurized milk does a great deal to kill the bacteri themselves. We are glad that we are realizing that fact, and eating less raw food, but we should remember that there is also a toxin produced by these germs them-

selves that heat does not affect, and a great many factors that have reached the border state that do not produce acute symptoms, yet are dangerous to the body economy. But we should not wait, we should institute these health methods of supervising the slaughter of our meat, the condemnation of flies and the self-preservation of the race.

Dr. D. G. Rafferty (closing): Just a word I wish to say about this group of organisms, and that is it is different from any group of organisms that we know anything about. In one case it produces a true infection, while in another case in a period of minutes to a few hours, a profound poisoning results. Nobody knows much about this Salmonella group. There is a great deal of confusion in the literature, and what determites whether one of these organisms is going to cause a poisoning, or cause typhoid fever we do not know.

THE USE OF FOREIGN PROTEINS IN THE TREATMENT OF DISEASES OF THE EYE.*

WILLIAM L. BENEDICT, M. D.†

and

CHARLES W. RUCKER, M. D.,

ROCHESTER, MINN.

If we regard vaccines as a foreign protein in the treatment of diseases of the eye our experience in this kind of treatment goes back to the time of Jenner. Probably everyone now engaged in the practice of ophthalmology, whose medical experience antedates the common use of some form of inoculation therapy, has noticed the effect on the eye of the injection of serum or antitoxin when given for the purpose of lessening susceptibility to disease, or for combating a disease already established. Yet, the consideration of treatment by foreign proteins has, within the last decade, taken a prominent place in medical circles. Much time is given to the discussion of clinical results, experiments have been carried out to determine the character of the reaction to proteins, and synthetic products have been marketed with statements as to their efficacy from physicians who have used them.

Attention has been focused on the action of proteins on the reticulo-endothelial system, on the production of anti bodies, and the probable rôle played in the stimulation of the production of antibodies or antibody exfoliation. The clinical and physiologic effects of parenteral injection of protein substances have been studied and correlated with symptoms from a modern standpoint, and although carefully scrutinized from a scientific point of view, proteins are still given on an empiric basis.

From the study of the parenteral administration of protein substances has come our knowledge of the toxic character of many of them. Anaphylaxis was known as a protein reaction at the beginning of the present century and the term was used by Richet to mean "without protection," indicating that the first injection destroyed any natural resistance that the animal might possess against the poison. Vaughan wrote that all true proteins contain a poisonous group, a chemical nucleus, "which does not become a poison until stripped in part at least of its secondary groups and the intensity of its poisonous action is determined by the thoroughness with which the secondary groups have been removed." It was his opinion that the poisonous nucleus was not responsible for the reaction seen in protein administration but that the side chains, the secondary groups, determined the specificity of the substance, for it is in these secondary groups that one protein differs from all others.

According to Wells, almost any protein will act as antigen, while no substance except proteins have this capacity. He stated, "At the present time it has not been conclusively established that anything except proteins ever exhibit true antigenic activity and lead to the production of specific antibodies. On the other hand, it is safe to state that nearly if not every

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†From the Department of Opthalmology, The Mayo Clinic, Rochester, Minnesota.

known sort of soluble protein occurring in nature is antigenic, if we limit our use of the term protein to those colloidal aggregates of amino acid which contain the full quota of amino acids usually found in complete proteins."

The sensitization produced by protein is specific; hence the characteristic clinical picture of the infectious diseases known to be due to the protein of certain bacteria. The production of antibodies, however, is brought about by injection of foreign proteins, regardless of any specific sensitization, and almost any degree and kind of fever can be produced by regulating the dose and the time of administration.

The way in which foreign proteins act to bring about a stimulation of healing in tissue which is locally infected has been the object of much study, and several theories have been advanced to explain it. We shall not enter into a consideration of these theories more than to say that proteins administered parenterically are probably diffused throughout the body, and as they come in contact with a large number of body cells whose walls are permeable they set up chemical reactions within these cells which in turn produce a ferment that stimulates antibody formation or "exfoliates" a large number of antibodies already formed. The benefit produced by parenteral administration of any foreign protein is therefore determined by this activity of the body cells. There is reason to believe that such action is limited in the case of most of the foreign proteins commonly used. Some proteins are destroyed by the body almost as soon as they are taken up by the blood without producing any reaction that can be recognized, while others produce mild reactions sometimes with slight fever. When proteins are used for their therapeutic effect in diseases of the eye, the specific effect is not essential. Only the cells in the vicinity of the lesion are sensitized to the invading organism and they do not throw off enough antibodies to bring about healing. Under favorable circumstances, the production of exfoliation of a large number of antibodies of another toxin when thrown into the blood stream will augment the action of whatever specific antibodies are already present and help to turn the indolent or nonhealing lesion into a healing one or at least help to retard its progress. It is on the basis of this phenomenon that foreign proteins are used in ocular therapeutics and that the choice of proteins which may be used is not limited.

Vaccines are given in small doses and are intended to raise an immunity to disease. They are specific proteins which presumably stimulate the formation of antibodies in small numbers. They are of little benefit in combating a disease that is once established and they may do definite harm. They have definite and proved value in ocular therapeutics but have fallen into disrepute largely through misapplication. A nonspecific effect is also derived from vaccines; this is noticeable if the dose is large or the patient sensitized, but in the dosage usually employed ther action is slight in comparison with other proteins. They are to be employed at weekly intervals for several weeks or months, after the acute stage of a disease of the eye has abated. Vaccines should be used to produce a high degree of immunity to a particular infection, whereas other foreign proteins should be used to effect immediate action in an acute condition. Vaccine should stimulate the formation of specific antibodies, and other foreign proteins should stimulate the formation of nonspecific antibodies. As this paper is concerned more with the latter action, vaccines will not be considered.

The substances which we have used in the cases referred to here are milk, typhoid vaccine, and antidiphtheritic serum. Milk was most frequently chosen for injection because of the freedom from severe reaction or anaphylaxis.

PRIMARY UVEITIS

In the more severe attacks of primary uveal inflammation, foreign protein seems to allay pain and bring about a feeling of comfort in the eye that is appreciated by the patient even though this is gained through a general reaction, often accompanied by headache, malaise and fever. In many cases the congestion leaves the eye, and the anterior chamber becomes clearer after the first injection. The results, however, are not uniform. Of seventeen cases of primary uveal inflammation good results were obtained by protein injection in thirteen; improvement did not occur in four. One of the four patients was a young man who suffered an acute attack of iritis while he was being treated for prostatitis. He received only one injection of 10 c.c. of milk and was unable to stay for further treatment. The second was a man aged sixty-three who had had chronic iritis for one year. Both eyes were affected and vision reduced to 4/60 in the right eye and 6/60 in the left eye. From October 23 to November 20, 1923, ten injections of 10 c.c. of milk each were given. On only three occasions did the temperature rise above 99° following the injection. Pain continued in the right eye. Three injections of typhoid vaccine were given followed by a course of streptococcus vaccine. Large doses of salicylates, mercury, thyroid extract and other agents were used without any improvement. The right eye was enucleated February 27, 1924, and found to contain a conglomerate tubercle involving the ciliary body and choroid with extension of the inflammation into the cornea and sclera. The left eye, however, which had been affected only slightly at first, improved under the treatment and when the right eye was removed the vision of the left had improved from 6/60 to 6/10. The patient died in May, and the cause was not ascertained.

The third and fourth cases were of middle aged men with bilateral uveitis which had existed for more than two years. One received only two injections of 10 c.c. of milk, the other injections of aolan. Prostatitis and dental infection of several years' standing were found in these two cases.

The best results were obtained in cases of iritis of short duration, from two to thirty days, although improvement occurred in one of 150 days and another of 400 days. Four injections of 10 c.c. of milk each were usually given besides the local treatment to the eye. Of the thirteen patients who obtained good results from the treatment, three received typhoid vaccine and one antidiphtheritic serum after four injections of milk had been given and the eye was not clearing satisfactorily. The change in the protein may not have been the cause of the improvement, but the possibility must be considered.

The etiology of the disease could not be determined in three of the thirteen cases of iritis. Persons in whom a focus of infection could not be found, or in whom the etiology could not be determined, made the most rapid and most satisfactory improvement. A positive Wassermann reaction was not obtained in any case. It was believed that metastatic focal infection of the uvea was present. Tuberculosis may have been present in more than the one case mentioned but not diagnosed. In the cases in which treatment failed to be effective, either the treatment administered was less than is usually given or some active focus of infection, such as prostatitis, was present which could not be eliminated. In general, little improvement was noted in cases in which the disease had been active for several months or in which there had been several previous attacks. The best results were obtained in the patients seen early in the first attack. In this series the ages ranged from fourteen to seventy years; the age, therefore, was not a factor in the therapeutic effect of the injections (Table 1).

SECONDARY UVEITIS

Iritis and iridocyclitis occur frequently after operations in which the eyeball has been opened, and after the eye has been in-

jured. The severe cases are usually indolent and chronic and yield to treatment slowly if at all. The eye is often irritable and does not tolerate intensive local treatment. Focal infection probably contributes to the chronicity of the disease and if possible should be removed. The cause of the continued inflammation may not be bacterial, as, for example, an operation on the eye or a burn of the cornea or conjunctiva. The use of foreign proteins for this condition may best be illustrated by the cases shown in Table 2.

The results in this group depended largely on the complicating factors. In cases in which there was keratitis or corneal leukoma, the inflammation of the uveal tract was not diminished by the injections. One patient with secondary glaucoma was not benefited. As in the series of primary uveal inflammation, the injections of milk had less influence on the course of the disease if the exciting cause persisted.

SCLERITIS

The most satisfactory result that we have noticed from the injection of milk has been the immediate effect on scleritis. This is a painful chronic disease characterized by remissions and exacerbations of congestion of the scleral tissues and often with sclerosing infiltration of the cornea. The iris, ciliary body and choroid are often involved in areas directly beneath the inflamed sclera. Scleritis is found most often in women, and usually begins shortly before the age of twenty and continues to reappear at intervals throughout life. The chronic or recurrent cases are said by Verhoff to be due to tuberculosis, although focal infection certainly may be considered as an etiologic or a contributing factor in many of them. The treatment of this condition heretofore has been unsatisfactory. Treatment with tuberculin has been found to do more harm than good in this disease, as we believe is true in most other conditions of the eye for which it is administered. Benedict, Von Lackum and Nickel reported in a recent paper the results of investigation and treatment in a series of cases of scleritis associated with focal infection. Moench has studied the relation between scleritis and infection in the pelvic organs of women.

We have seen cases of scleritis, which had existed for months with constant redness and pain, clear up after two injections of 10 c.c. of milk. Table 3 illustrates the use of milk in this disease, but the data are not conclusive. The patient in Case 31 had been suffering from recurrent attacks of scleritis for more than twelve years. She had been told that the eye trouble was due to local tuberculosis and had been sent West from a large eastern city in the hope that the climate would be of benefit. The attack which brought her to the clinic was severe; the pain prevented rest, and the vision was failing. Two injections of milk followed by a course of autogenous vaccine resulted in complete disappearance of all symptoms and the vision was fully restored.

The patient in Case 35 had had recurrent attacks of scleritis for ten years. On three occasions in as many years she has been hospitalized and given injections of milk. Each time the eye became clear after from one to four injections. Immunity was not produced by these injections. An exacerbation might follow within a few days after a successful course of treatment had been concluded. She refused to take vaccine because of a severe setback she had experienced a few years before while taking a course of tuberculin. She now gives a positive Mantoux reaction to 0.02 mg. of tuberculin.

CHOROIDITIS

Exudative choroiditis with vitreous opacities of obscure etiology may show improvement after treatment with protein is instituted. The changes take place more slowly than in cases of external inflammation. Definite improvement followed injection of milk in two cases in which treatment with other remedies had been without effect.

Table 1

Iritis, iridocyclitis and uveitis treated in the hospital by parenteral injections of foreign protein

Primary

Case	Age	Date	Diagnosis	Previous attacks	Duration of present attack, days	Milk c.c., or typhoid vaccine	Highest recorded temperature, degrees	Comment	Result
1	14	11/19/27	Iritis of left eye		10	10 10 10 10	98.6 100.0 100.0 101.0	Etiology unknown, general examination negative	Good
2	35	4/1/27	Iritis of left eye		7	10 8	100.0 100.0	Tonsils infected 3	Good
3	53	1/2/28	Iritis of right eye		2	10 10 8 10	101.8 102.2 101.2 101.0	Etiology unknown, general examination negative	Good
4	70	1/23/28	Iritis of left eye	1	150	10 12 12	100.4 101.6 100.0	Prostatitis 2; tonsils infected 2	Good
5	53	11/9/27	Iridocyclitis of left eye		400	10 10 8 6 6 6	99.5 101.0 101.5 100.8 100.5 100.3	Treatment in June, 1927 with vaccine prepared from culture from the cervix, no effect	Good
6	16	11/1/27	Uveitis of left eye		30	10 12	98.6 98.6	Tonsils infected 2; five injections of diphtheria antitoxin given on five successive days	Good
7	45	4/26/27	Iritis of left eye	5	2	10 8	100.0 100.2	Foreign body in right eye five years previously removed early without scarring; recurrent iritis since; three teeth infected	Good
8	30	2/17/27	Iritis of both eyes	2	7	10 10 8	101.0 103.8 100.0	Etiology unknown; general examination negative	Good

9	27	12/31/23	Iritis of right eye	3	6	2 10 *T.V.	100.0 98.6	Several attacks of iritis in last four years; under treatment for gonorrhea	Good
10	40	1/26/25	Iridocyclitis of right eye	5	60	5 8 T.V. T.V. T.V.	98.6 98.6 98.6 98.6 98.6	First attack twelve years previously; prostatitis	Good
11	15	6/20/24	Uveitis of both eyes		210	10 10 10	99.2 101.2 98.2	One infected tooth removed	Good
12	30	8/27/27	Iridocyclitis of right eye		6	5 7	99.4 100.0	Left eye removed one and a half years previously for iridocyclitis; eight infected teeth removed	Good
13	35	1/7/26	Iritis of right eye	7	5	8 10 10 10 10 10 10 10	98.6 98.6 98.6 98.6 98.6 98.6 98.6 98.6	Onset seven years previously; prostatitis 2, treatment for this made eye worse	Good
14	27	11/13/23	Iritis of left eye		3	10	99.0	Iritis developed during treatment for prostatitis 4	Good
15	63	10/11/23	Iritis of both eyes		350	10 10 10 10 10 10 10 10 10 10 T.V. T.V. T.V.	98.6 98.6 98.6 101.4 98.6 100.4 99.0 99.5 99.0 98.6 103.0 101.0 102.0	Treatment had no effect; right eye enucleated 2/27/24; a tubercle involved the ciliary body and choroid	No improvement
16	32	5/25/26	Uveitis of both eyes		730	10 10	? ?	Prostatitis 3; two infected teeth and tonsils removed one year previously	No improvement
17	42	12/24/23	Uveitis of both eyes		3500		?	Prostatitis 2; periapical infection 2; aolan from February 8 to April 3, 1924	No improvement

*T.V. = typhoid vaccine

Table 2

Iritis, iridocyclitis, uveitis

Secondary

Case	Age	Date	Diagnosis	Duration	Duration of present attack, days	Milk c.c., or typhoid vaccine	Highest recorded temperature, degrees	Comment	Result
18	73	7/12/27	Uveitis of left eye; secondary to operation	1.5 months	5	10 8 7 8 7	101.0 101.0 99.0 102.0 100.0	Cataract removed 7/20/27; considerable reaction beginning on fifth day and lasting two weeks; exacerbation 8/28/27; patient returned 9/3/27; given injections of milk; five teeth with root abscesses removed; which may have been a factor in the rapid diminution of the inflammation	Good
19	52	6/13/27	Uveitis of left eye; secondary to steel in the eye	8 months	10	10 8	100.2 101.2	In the autumn of 1926 a piece of steel was in the left eye for three days; after removal of foreign body the eye appeared normal until the present attack; tonsils were infected 2, prostate 2, and periapical 2, patient did not remain for treatment	Good
20	78	4/28/22	Uveitis of right eye; corneal leukoma secondary to foreign body in cornea	5 weeks	35	3 4 5 5 5	98.6 99.0 99.5 99.0 98.0	Dirt flew into right eye five weeks previously; in spite of use of atropine and aspirin inflammation continued; diminished quickly after first injection of milk	Good
21	42	8/23/26	Uveitis of right eye; secondary to concussion	32 years	14	*T.V. T.V.	100.0 98.0	Kicked in right eye by colt at age of ten; vision in this eye poor ever since; became inflamed two weeks previously; general examination revealed syphilis and prostatitis 3	Good
22	50	2/2/28	Iritis of left eye; secondary to steel in eye and injury to cornea by flying glass	3 years	7	10 15 15 15	99.6 100.2 100.4 101.6	Piece of steel lodged in left eye January, 1925; removed with magnet at the Mayo Clinic January, 1926, with little reaction; traumatic cataract; eye blind. After second injury seven days before examination the eye became greatly inflamed; this cleared after four injections of milk; another attack occurred three weeks later, this did not yield to two injections of milk; the eye was removed	Good
23	49	11/29/26	Iritis of right eye; secondary uveitis, complicated cataract; eye quiescent many years before extraction of cataract		3	10 8 8 8	100.0 100.0 100.0 ?	In 1881 the left eye was injured and removed a few days later; low grade iritis in right eye for many years; optic iridectomy in clinic 12/2/26; little reaction of vision 3/60; 6/6/27 extraction of complicated cataract of right eye of forty years' duration; a few days later hemorrhage occurred in the anterior chamber with considerable reaction; injections of milk at this time; eye quiescent after a few weeke; vision 6/15	Good

24	50	7/9/27	Iridocyclitis; corneal leukoma of right eye secondary to injury in childhood	40 years	150	10 8 8 10	101.0 98.6 99.6 99.6	Right eye injured in childhood; easily irritated since; exacerbation three months ago; this disappeared after injections of milk	Good
25	39	5/27/26	Iridocyclitis and keratitis of left eye; secondary to injury to cornea	2.5 years	14	10 15 20 20 20 20 20 20	100.2 100.5 99.2 100.2 100.0 99.5 103.0 102.0	Left cornea scratched by barley beard in August, 1923; ulcer and later keratitis developed; eye painful for five months then quiescent until May, 1926, when it again became inflamed; with injections of milk inflammation subsided slightly; later ulcer appeared at center of cornea; eye remained red and painful for four months; 10/8/26 it was enucleated; tonsils were infected 2, prostate 3	Good
26	33	5/31/27	Iritis and corneal leukoma ofl eft eye;recurrent corneal ulcer of left eye	16 years	150	10 8 8 7	101.5 103.3 102.3 101.6	History of ulcers of left cornea in 1911, 1915, 1919, 1922, and iritis in the same eye in 1922; the eye has been painful for the last five months; injections of milk caused immediate subsidence of inflammantion, but within a week there was another "flare-up"; later two injections of typhoid vaccine were given without benefit	Good
27	59	8/23/26	Iritis of right eye; secondary to discission of after cataract	21 days	21	 10	101.0 100.0 103.2	8/14/25 extraction of nuclear cataract of right eye with mild reaction; 8/3/26 discission same eye, with moderate reaction; 8/6/26, eye quiescent; vision with correction; right eye 6/10; left eye 1/60;8/23/26 returned to clinic complaining that the right eye had been inflamed for the last few days; two injections of typhoid vaccine a week apart with doubtful result; eye continued to flare up at irregular intervals; 6/24/27 iridectomy of right eye followed by bleeding into the anterior chamber; 6/-29/27 10 c.c. milk injected without benefit, severe reaction; injection not repeated; 11/21/27 iridotomy of right eye; moderate reaction; 11/28/27 vision right eye moving objects; left eye 2/60	No improvement
28	47	11/10/27	Iridocyclitis and secondary glaucoma of left eye; corneal ulcers	50 days	50	10 12 12	99.2 100.0 99.0	Corneal ulcer appeared on left eye seven weeks previously; two weeks later the eye became greatly inflamed; hospitalized for four weeks, elsewhere without improvement; came to clinic; three milk injections without benefit; left eye enucleated 11/25/27 because of severe pain; infection of tonsils 3	No improvement
29	21	9/27/27	Iritis and keratitis disciformis of left eye	9 weeks	4	10 10 12 12	101.0 100.8 102.0 98.0	Foreign bodies from emery wheel flew into left eye nine weeks previously; removed the following day; eye remained inflamed for two weeks; quiescent until four days previously when it suddenly exacerbated; no improvement while in clinic	No improvement

* T.V. = typhoid vaccine

Table 3

Data on eight cases of scleritis and episcleritis treated by injections of foreign protein

Case	Age	Date	Duration of present attack, days	Injections of milk, c.c.	Highest recorded temperature, degrees	Comment	Result
30	37	12/30/27	30	10 10 12 15	89.4 101.2 ? 100.2	Scleritis of left eye; several previous attacks; frequent ulcers of left cornea during last four years; treated with vaccine from cervical culture following injections of milk; positive Mantoux test 1/200 mg.	Good
31	32	1/4/27	60	5 10	98.6 99.0	Scleritis of left eye; recurrent attacts of both eyes for several years; given vaccine made from cervical culture following injections of milk	Good
32	36	12/15/24	35	8 10 12 10 12	98.6 98.6 98.6 98.6 98.6	Episcleritis of right eye; eye not previously diseased	Good
33	26	6/4/24 8/9/24	14	10 10 10 5 10 10 10 10	99.2 100.5 100.5 99.0 99.0 99.2 99.2 99.0	Episcleritis of right eye 1/50 mg. tuberculin subcutaneously; no reaction; right eye injured in 1914; no trouble until the last fourteen days; eye flared up 8/9/24	Good
34	22	9/5/24	180	10 10 10 10	99.0 99.8 98.8 99.0	Eyes had been inflamed constantly for the last six months; left was acutely inflamed when examined; vision of right eye 6/6; left eye moving objects; after injections of milk eyes were clear and free from inflammation, vision of right eye 6/6; left eye 6/10	Good
35	26	11/8/24	50	5 10 17 20	98.6 98.6 100.0 102.0	Scleritis of right eye; positive Mantoux 1/200 mg.; eye not previously diseased; teeth, tonsils and cervix infected	Good
36	40	4/11/23	14	6	99.0	Scleritis of left eye; eye not previously diseased; teeth and tonsils infected	No improvement
37	76	5/5/24	35			Scleritis of both eyes; left eye injured twenty years previously; under treatment for corneal leukoma and sclerosing keratitis for last seven years; later was given nine injections of vaccine made from cervical culture with apparent benefit; three injections of typhoid vaccine	No improvement

Table 4

Penetrating injuries of the globe with retention of foreign body

Case	Age	Date	Days after injury	Diphtheria antitoxin, units*	Injection of milk, c.c.	Highest recorded temperature, degrees	Comment	Result
38	15	10/1/27	21	2000 2000 2000 2000 2000 2000 2000 2000 3000 3000 3000 3000 3000 3000 3000 3000 3000 3000			Foreign body in left globe; threatened sympathetic ophthalmia of right eye; left eye perforated by a piece of metal when a railroad signal torpedo exploded; home physician was unable to remove foreign body; and performed iridectomy; left eye greatly inflamed; x-ray showed foreign body within the globe, not magnetic; right eye normal; vision 6/7, left eye moving objects; course of foreign protein; 10/2/27 (after treatment); right eye remained normal; left eye now quiescent, lens cataractous and about half of it is absorbed; vision of right eye 6/5; left eye count fingers at two feet; 11/29/27 eye still quiescent and comfortable	Good
39	12	8/16/27	11		5 5 4	103.0 101.5 99.0	Panophthalmitis of left eye; 8/5/27 a piece of hot iron perforated the left globe; six days later home physicians located it by x-rays and made an unsuccessful attempt to remove it; two days later eye inflamed, lids swollen, and pus formed within globe; came to clinic 8/16/27 eleven days after the accident; injections of milk; eye perforated spontaneously 8/23/27; evisceration 8/23/27; uneventful convalescence	No improvement

* Injected at intervals of twenty-four hours.

Table 5

Penetrating injuries of the globe without retention of foreign body

Case	Age	Date	Days after injury	Milk, c.c. or typhoid vaccine	Diphtheria antitoxin, units *	Highest recorded temperature, degrees	Comment	Result
40	23	1/24/27	25 160 	10 12 12 12 10 8 10 10		100.8 100.2 100.3 101.5 100.0 98.0 99.6 99.6	Right eye-ball cut by fork 1/1/27; iris protruded through wound and iridectomy performed; eye has been inflamed since;1/25/27 to 1/30/27 first series of milk injections; a few days later inflammation subsided markedly; patient dismissed; returned 5/23/27 complaining that the eye had been inflamed occasionally; then worse; 6/10/27 to 6/16/27 the second series of milk injections was given; inflammatory signs and pain subsided, but recurred 6/21/27	Good
41	34	3/31/26	7	15 15 **T.V. T.V.		99.0 99.5 99.5 99.0	Piece of steel flew into left eye 3/26/26; the following day the home physician made an unsuccessful attempt to remove it; 3/21/26 congestion of bulbar conjunctiva and deep circumcorneal injection; foreign body localized by x-ray; removed by magnet in clinic 4/1/26; series of injections of milk; two injections of typhoid vaccine 4/13/26; still moderate injection of the eye; pupil well dilated; patient dismissed	Good
42	42	4/10/26	6		10,000 15,000 10,000 10,000	99.0 99.0 99.0 99.0	Sclera of left eye perforated by shingle nail 6 mm. from limbbus; injection and chemosis of bulbar conjunctiva; inflammation subsided steadily; three weeks later still slight congestion and many floating vitreous opacities, 11/27/26 eye quiescent; vision of right eye 6/6; left eye 6/20	Good
43	20	12/6/24	14	5 10 T.V. T.V. T.V.		99.5 99.2 99.2 99.0 99.0	Small piece of steel struck left eye 11/30/24; marked congestion of bulbar conjunctiva and circumcorneal injection; some opacity in lens; two roentgenograms failed to reveal foreign body; inflammation continued; hypopyon began to form 12/13/24; foreign protein 12/24/24; hypopyon disappeared; eye became quiescent; three injections of typhoid vaccines; flared up again a week after last injection; remained irritable for a year and a half	Good
44	16	5/11/25	21	5 8 10 10		101.3 100.0 99.0 101.5	Three weeks previously following an explosion, a piece of brass pierced the right eyeball; removed by a physician who advised enucleation; this was refused; deep injection of bulbar conjunctiva; wound of cornea down and out, with incarceration of the iris, lens cataractous; x-ray showed multiple shadows over orbit; foreign protein injections at forty-eight hour intervals; 5/27/25 no change (after the injections) 6/6/25 eyeball phthisical; moderate circumcorneal injection; tension 3	No improvement
45	39	8/18/27	3	10 8 10 10		99.5 99.0 99.0 100.0	On 8/15/27 the knot on the end of a long whip struck the right eye; severe pain since; lids swollen, moderate injection of bulbar conjunctiva, some chemosis, laceration through upper portion of cornea and iris, hyphemia occupies lower 2 mm. of anterior chamber; eyeball dark on transillumination; tension to palpation +3; injections of milk; 8/29/27 pain persists; fresh hemorrhage into anterior chamber; dismissed at own request; no improvement except decrease of pain	No improvement

*Injected at intervals of forty-eight hours.
**T.V. = typhoid vaccine.

In one case in which the cause was obscure the vision of the affected eye was reduced to 1/60 by vitreous opacities which had existed for four months. Four injections of milk were given and there was a febrile reaction following each injection. The opacities cleared away rapidly and vision of 6/7 was restored in four weeks. A large lesions in the choroid in the lower quadrant of the eye was the evident source of the opacities. This area did not show activity at the end of the treatment. In a case of disseminated choroiditis of the left eye the vision had been clouded for eight months and was reduced to 1/60 at examination. Four injections of milk were given with a resulting slight febrile reaction. This was followed by four pilocarpine sweats. Vision improved to 6/15 after four weeks of treatment. Large vitreous opacities remained, and there were many areas of choroidal atrophy at the periphery of the fundus. There was no evidence of activity. The significant feature of these cases is the rapid response to treatment after the condition has been stationary for many months. The improvement must be credited to the injection of milk, although other treatment was continued as well.

PENETRATING INJURIES OF THE GLOBE

Cases of penetrating injury of the globe, in which a foreign body is not present in the eye at the time treatment is started, constitute a small list of considerable interest. If the eye is not infected at the time of injury the immediate effect of injection of milk is to allay pain and reduce congestion. Other general and local treatments should be given with or immediately after the course of milk, as the first improvement is of short duration. In one case of penetrating injury with a foreign body, probably with retention of a small piece of stone within the eye, sympathetic ophthalmia was imminent and large doses of diphtheria antitoxin were given. The eye has remained quiet. A case of panophthalmitis was not affected by the use of small amounts of milk. In this case larger doses might have been of some benefit (Tables 4 and 5).

MISCELLANEOUS LESIONS

We have used injections of milk, typhoid vaccine and diphtheria antitoxin in a miscellaneous group of lesions, of the cornea and conjunctiva and in wound infection. Regardless of the duration of the disease or the age of the patient, the results obtained were not far different from those obtained by local and general remedies other than the injection of protein. Only hospitalized patients were given protein therapy, and few of our patients with corneal lesions required treatment in the hospital. It has not been our practice to use any injections unless the reaction can be observed, particularly if a febrile reaction is expected. Injections of milk were usually given at intervals of forty-eight hours, diphtheria antitoxin daily. Typhoid vaccine was given at longer intervals, depending on the severity of the general reaction.

Protein therapy is used with good results in some diseases of the eye. The substances in most common use are milk, typhoid vaccine, diphtheria antitoxin, and proprietary medicaments. The indications for use and the choice of the substance to be used are not clearly established.

CONCLUSIONS

The histories of patients who have been treated with various proteins have been reviewed, and the following deductions have been made:

1. The age of the patient has no bearing on the result of the treatment.

2. Boiled milk is a safe protein to use. No anaphylaxis has been observed.

3. Some patients fail to react to injections of one protein. Other proteins may then be used.

4. Large doses of diphtheria antitoxin can be given daily for from twenty to thirty days.

**T.V. = typhoid vaccine.

5. Some chronic diseases of the eye respond to protein therapy; the treatment should be continued long enough with sufficient quantity of protein to determine whether or not there is any effect.

6. Protein therapy is an adjunct to general and local treatment but has great value in early inflammatory disease of the eye and should be used freely in hospitalized patients. Its value is considerably less in ambulatory patients.

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DISCUSSION

Dr. Jules Dupuy, (New Orleans): I have always been deeply interested in the subject of milk injections and, as far as I know, believe I was the first in New Orleans to use this therapy, at least to employ it in Charity Hospital according to the records of that institution.

In the beginning I was subjected to criticism and ridicule and was always confronted with the task of proving that milk injections were responsible for the beneficial results. My confreres would say: "If you had not given the milk injection, don't you think that the eye would have improved just as rapidly?" Dr. Feingold especially would often say: "It looks well, but without the milk injection don't you think the eye would have been cured?" In answer to these questions I could only state that from observation the cases in which I employed this therapy always seemed to improve and get well more rapidly than those in which it was not used.

The first case I remember was a post operative infection. This woman had a severe plastic iridocyclitis and panophthalmitis. After the milk injection her improvement was simply marvelous. I saw this patient in conjunction with Dr. Dimitry.

As a rule the improvement is equal to the amount of constitutional reaction obtained; in other words, if followed by a chill, malaise, the patient greatly disturbed, the improvement is more marked than when there is low temperature and very little clinical reaction. In Charity Hospital it has been adopted as the routine treatment in gonorrheal ophthalmia. The result derived therefrom seems almost miraculous.

I do not know whether the essayist mentioned that it is given according to age. To a child around four or five years we give 2 c.c.; in adults about 10 to 15 c.c., repeating the dose according to the constitutional reaction. If your patient has a severe reaction, wait until subsidence, then give another dose: if the reaction is mild, give a larger dose.

In post-operative and traumatic infections foreign protein injections, particularly milk, are a great weapon and in gonorrheal ophthalmitis a very powerful weapon. The general practitioner in the country is the man who should most appreciate this therapy, particularly in the early treatment of puncture infections of the eye where prompt action is necessary, and in gonorrheal infections which are so plentiful in the country. The response to treatment is very rapid. An eye may be almost closed, painful, swollen and extremely hard to open, but a short while after the milk injection the improvement is apparent. If you do not care to give the full dosage, give 10 c.c., preferably in the buttock. It can be given in the pectoral region and in the sides, but in those cases where we go deep in the gluteal muscles it seems to be more rapidly absorbed and give the best reaction. As previously stated, the benefit appears to be in proportion to the constitutional reaction.

Dr. T. J. Dimitry (New Orleans): Dr. Benedict is to be highly complimented in the presentation of a study of a difficult problem, "Milk as a foreign protein, used therapeutically." The use of this foreign protein is most noticeable in its beneficial effect and in particular in certain eye conditions.

I interested myself starting some sixteen years ago in the same problem, and I still remain greatly interested in the study of the foreign proteins and of certain inorganic substances like that of mercurochrome injected intravenously producing a protein reaction. I can not say that I have found anything quite so satisfactory as I have milk.

Milk like all agents when used therapeutically has its limitations and at times may be quite harmful. The use of milk is very much contraindicated in my opinion, where tuberculous, particularly in the eye, exist. I have observed permanently and complete destruction of the eyes in tuberulosis following its administration parentially.

Dr. Dupuy is mistaken in his claim for priority of the use of milk in this community. I refer him to the New Orleans Medical and Surgical Journal of many years back—for a modest contribution on the subject.

This offers an opportunity to call Dr. Cohen's attention to error in his claim in a paper just previously read that Touro Infirmary first installed "deep roentgen-ray" apparatus. I refer him to the public press of the City of New Orleans.

Dr. Jules Dupuy (New Orleans): I think Dr. Dimitry misunderstood me. I said that the first milk injection in the treatment of eye diseases recorded at Charity Hospital was given by me and that, as far as I knew, it was probably the first done in New Orleans. Now, before I made that statement, I carefully looked through Charity Hospital charts of eye cases covering a period of fifteen years and according to the records I am the first to have used this therapy in the institution. If Dr. Dimitry at some earlier time employed this method of treatment, he certainly made no record of it.

I am sure I did not mean to take any credit from Dr. Dimitry. He has always been very close to me and if I have robbed him of any distinction I wish to apologize. In claiming priority in the use of this treatment at Charity Hospital I made the mistake of relying on the information derived from the record of that institution.

Dr. Joseph Cohen (New Orleans): I was under the impression that Touro Infirmary was the first to have a deep roentgen-ray therapy machine in New Orleans. If it was not, I want to publicly acknowledge my mistake.

THE NEW PHARMACY—The following is an exact and literal transcript of a communication recently received by the Editor of this Journal:

A PRESCRIPTION FOR FITTS

One quart of bourbon Gin.
Imported from france.
half pound of Gunpowder tea.

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half Pound of Square Cut Loaf Sugar. boil these down to A Gill use them until the Desease breaks

---

The suposition is in 24 hours for the strongest strongest Desease

---

inflamations on the glandes around the heart Brain & Lungs & Stomach.

Some vitules for A Weak State
Take A White Wheat Loaf, of bread
Dry it to A dark brown Powder.
Mix the Powder with salt & Sugar & Water bake in A Slow oven

THE EYE PICTURE, IN RELATION TO INTRACRANIAL LESION WITH REPORT OF CASE.*

FERN CHAMPENOIS, M. D.,

HATTIESBURG, MISS.

In presuming to present this paper to such an intelligent body of ophthalmologists, I realize my limitations and inability to discuss the subject in such detail as would my more experienced colleagues, or as would a neurologist. And in approaching it, I say approach, as I shall never arrive, I do so with the hope that it will bring out enlightening discussion and because I am interested and delight in endeavoring to trace the effect to the cause. The eye picture is the effect of some intracranial cause.

So it is that I shall only touch the neurology of the eye from the high points of most interest to the oculist. The field is entirely too broad for an average oculist like myself to do otherwise.

It is true that most of us do not enjoy the advantages of a large experience with eye disorders that have lesions of the brain for a background; and as a result will never qualify as an expert; but surely it is a source of much pleasure and satisfaction to inteligently interpret the meaning of a choked disc, and altered visual field, a disturbed pupillary reaction, as well as a paresis of the extra-ocular muscles.

Choked disc, as you know, is a swelling of the nerve head, being of a gray red color. The physiological excavation disappears and the veins of the retina become large and tortous, while the arteries appear small and straight. This picture calls attention to cerebral disease, usually a tumor of the brain. Double choked disc is not only met with in tumors of the brain, but in abscesses and sinus thrombosis as well, also in gumma and chronic syphilitic meningitis of the base. Choked

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*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

disc of one eye is usually caused by neoplasms of the orbit. Of course certain poisons, such as nephritis, lead poisoning and multiple sclerosis might cause bilateral choked disc, but as a rule, in these diseases, the picture is not so marked; the optic nerve head does not show the extensive swelling, but rather resembling that of an optic neuritis

It is unusual and difficult to accurately locate a brain tumor by the ocular picture alone because the various nerve pathways are too complicated for the most of us to master, but when we see a double choked disc we can safely conclude that a brain tumor exists in ninety per cent of the cases.

Visual disturbances occur early when the lesion is situated in the cerebellum or at the base of the brain along the optic tract, and, the choked disc is a cardinal symptom, it might not appear until late, as in tumor of the cerebrum.

As I said previously, it is not my intention to make an effort to definitely locate a brain tumor from the eye picture alone; I shall leave that to the neurologist, but after I have presented some facts regarding the pathology of the visual fields, the pupillary reactions and the extrensic muscles, I will try to show the picture as a whole, taking a case of mine for this purpose.

Since the optic nerves, from central origin to distribution, are usually in evidence from pressure from brain lesions, I shall give a slight resume of their anatomy, and also discuss the why of the hemianopsias

The optic nerves after leaving the orbits form the chiasm just above the sella turcica of the sphenoid bone. There is a partial decussation of fibres here which, when understood, explains the forms of hemianopsia. The outer fibres of both tracts do not decussate, but continue to form the nerve supply of the outer half or temporal side of each retina. The inner fibres of both tracts cross at the chiasm, those of the right tract supplying the inner or nasal half of the left retina, while those of the left supply the inner or nasal half of the right; thus the right optic tract cares for the right side of both retinae and therefore, by the law of projection, of the two left halves of the visual fields; the inverse is true of the left optic tract.

Hemianopsia is defined as an absence of half the field of vision of each eye; hemianopsia is of two classes, heteronymous and homonymous. If the temporal halves of the fields of vision are absent, it is called a heteronymous bitemporal hemianopsia, and is induced by a lesion in the chiasm that effects only the decussating fibres. The binasal form of heteronymous hemianopsia is very rare as the outer sides of the chiasm must be affected before an absence of the nasal fields will be in evidence.

In homonymous hemianopsia either the right or left half of the field of vision of each eye is lost. This condition is caused by a lesion of one or the other optic tract between the chiasm and the occipital cortex. If the entire left optic tract is destroyed the temporal half of the left retina and the nasal half of the right retina is left without nerve supply; thus we have a homonymous hemianopsia of the right side. The same is true of a lesion of the right tract, excepting here we have a condition where nothing is seen to the left of the median line of the two eyes. A hemianopsia is complete when a vertical line passing through the fixation point of each eye divides the visual fields into a seeing and a blind half. It is incomplete when certain lesions do not completely destroy all of the fibres, and when the fields show partial symmetrical loss of vision. A lesion situated further up in the visual center of one occipital cortex might be the cause of a homonymous hemianopsia, and when so, we have a condition, even when the entire centre is destroyed, where in the

entire half of the common visual is not lost; this phenomena is know as the preservation of the macula.

I shall discuss briefly the normal pupillary reactions and some important disturbances of their innervation: the pupil either contracts or dilates and is motivated by the oculomotor through the ciliary ganglion and the sympathetic through the cilio-spinal centre. The reactions are involuntary and without consciousness. For our purpose there are three chief reactions; first, by the direct reflex reaction to light; second, by the indirect reaction to light; third, by the reaction of convergence. By the direct reaction, we mean there is a contraction of the pupil when a light is thrown directly into the eye; the indirect or consensual reaction is the contraction of both pupils when a light is thrown into one or the other eye; and by the reaction to convergence, we mean that on looking at a near object both pupils contract. The tract of the reflex contraction of the pupil begins in the pupillomotor area of the retina, thence to the optic nerve, optic tract and centre where communicating fibres carry stimulus to the nucleus of the oculomotor by which it is returned to the eye. The pupillary reactions alone can give no definite indication in the localization of a brain lesion, but there are three diseases wherein the proper interpretation of the pupillary phenomena are very characteristic. These are syphilis of the brain, tabes and progressive paralysis. Since I am only dealing with the brain, I shall say just a few words about the syphilitic pupil of brain origin. Syphilis of the tertiary variety seems to have a predilection for attacking the nuclei of the internal muscles of the eye, causing an absolute immobility of the pupil in one or both eyes. In an amaurotic immobility of one pupil there is some disturbance along the pupillary pathway which causes an absence of both the direct and indirect reflexes, but the reflex contraction of convergence remains. In an unilateral amaurotic immobility, the pupil of the blind eye is larger than in the other. Both pupils are dilated equally when both eyes are blind. An absolute immobility of the pupil is recognized by an absence of all reflexes and is due to a loss of function of the sphincter. In a reflex immobility of the pupils, both direct and indirect reflexes are lost, but that of convergence remains; this condition is seen in tabes and is known as the Argyll-Robertson pupil.

When a patient presents himself complaining of seeing double, and a monocular diplopia has been excluded, you can conclude that a paresis of one or more or the extrinsic ocular muscles exists. The exclusion of a monocular diplopia is simple as the diplopia remains when one eye is closed, it being caused by a luxated lens, an incipient cataract or an iridodialysis. These conditions permit two images of the same object to be cast upon the retina. A diplopia due to a muscle paresis would be noticed by an impairment of mobility. In other words, there would be a deviation due to a lagging behind of the paretic eye. Then, again, the patient might complain of vertigo and a disturbance of orientation. The muscle or muscles involved can be analyzed by means of the double images.

I shall not bore you in an endeavor to explain the diagnostic value of pareses of the extrinsic muscles of the eye, nor will I try to group these pareses with the thought of localization of the causative lesion, but I would like to present a report of a case showing the eye picture that caused me to make a diagnosis of brain tumor. I did not attempt localization, leaving this to the neurologist; but as you will see he failed to localize the tumor.

I was called in consultation last October by another eye man to see Mrs. N. P., who gave the following history: She was a white woman of 42 years of age, a mother of six children and had had no miscarriages. About two years ago a tumor of the breast was removed, otherwise at this time she was enjoying very good health. I was unable to learn the nature of this tumor. A year after the removal of tumor she suffered

from pains in the knee and hip joints. Shortly after this she developed evidences of paralysis of the right leg, gradually showing a definite hemiplegia. At some time during this period she was advised to have her tonsils removed. This was done before she became helpless. No improvement was seen; in fact, her condition grew worse until she became bedridden. A Wassermann was made about this time with a negative report. My examination showed vision nil, both pupils dilated, no reactions, absolute immobility, very little movement of the globe in any direction, fundi media clear, but showing a well marked bilateral choked disc. There was no pain of any kind, but the patient showed beginning mental deterioration. With this picture there was no doubt about the diagnosis, a tumor of the brain probably of the base. It is possible that some of you could be more definite as to location, if so let us hear from you. But the neurologist to whom I referred her made this report which I will read. However, this report seems a little indefinite to me; seemingly there was no effort at localization:

"The summary of my examination is as follows: Right hemoplegia, which was gradual in onset and progressive; double choked discs; increased intracranial pressure, mental deterioration; blindness. Laboratory findings, including the spinal fluid, were negative. I made the following notes. It is my feeling that this is probably a metastatic tumor. Operation was not recommended.

There is no doubt that this patient suffered from a tumor of the brain, the exact nature of which was not determined. It may have been primary, but as you recall, there was a history of a breast tumor being removed a few years ago."

Dr. ————————

DISCUSSION.

Dr. Bell: A number of years ago Posey and Spiller compiled and printed a very large volume on eye symptoms of nervous diseases. I gave this volume very careful reading after which I decided it was a little bit too deep for me.

The interpretation of eye symptoms of nervous diseases as given by the big men in the United States, say it might be this and it might be that. It does not help any when you get to read men who are leaders in the profession, and who tell us that some certain eye symptom may be found in some certain disease; the same symptom may not be present and the same symptom may or may not be present in any of a half dozen other nervous diseases.

Dr. Gaudet: The chairman here is a good friend of mine and I am glad to be permitted to discuss this paper. When he says we didn't come prepared he is right, and so is Dr. Bell. It is rather difficult to present a subject without a little study. The fact is that 90 per cent of brain tumors are diagnosed by symptoms of pressure. From the image presented in the eye grounds you frequently make a diagnosis of brain tumor. We are convinced long before it appears because of the symptoms. We find symptoms such as a patient seeing double. Dr. Bruns repórts that 75 per cent of these are due to lues.

In many of these cases we find a negative Wassermann reaction. Some of the patients have had treatment by neuro-psychiatrists. Whenever there is diplopia we suspect syphilis or neurosyphilis.

We ought to show our appreciation to Dr. Chapenois by giving this paper free discussion.

Dr. Howard: I do not think it best. Dr. Gaudet ought not be allowed to get away. We are always glad to get Dr. Gaudet on the floor, but we know from our own general knowledge of things that when he got up he hated to get up so soon.

Dr. Champenois: Thank you, gentlemen, for your kind discussion.

I didn't prepare this paper as a neurologist. I wanted you to review an eye picture of choked disc.

I think that 75 per cent or possibly 80 per cent of these cases are infectious.

CONTUSIONS OF THE EYE.*

M. H. BELL, M. D.,

VICKSBURG, MISS.

Located in an agricultural section and away from the larger industrial and manufacturing centers, it has been my experience that contusions of the eye are seen more frequently than wounds of a penetrating type.

The agent causing the injury will be found to vary greatly, but is comparatively small in the majority of the cases. The injuries may be conveniently divided into those caused by bodies so large that the force of the blow does not reach the eyeball, but is expended on the orbital margins, or by a smaller body which strikes the margin of the orbit only and those where the eyeball receives the full force of the blow.

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

This is a practical division since contusions of the orbital margin may cause the well known "black eye" and subconjunctival hemorrhage causing much apprehension on the part of the patient and friends, while as a matter of fact the prognosis is entirely good. A very much less significant injury where the force of the blow is expended directly on the eyeball may be hopeless, in so far as recovery of useful vision is concerned from the beginning. It is most unfortunate that so many of these patients are children who have an eye injured in play and are deprived of useful vision in one or both eyes for life.

One of childhood's perennial games, that of "chunking" is responsible for many sightless eyes. The wounding agent is often most insignificant, a small stone, bit of hard dirt, ball, stick, anything the youthful hand picks up.

The air rifle plays its part and every year a few cases due to fireworks, roman candle balls, exploding firecrackers, etc., will be seen.

A very frequent cause in older patients is small bits of stalk thrown by stalk cutters.

I see more cases due to small bits of wood and chips from cutting kindling and wood than any other single cause and many cases of penetrating wounds come from the same cause due to sharp splinters on the bit of wood.

In the cases of slighter blows, which only cause injury to the cornea and conjunctiva with or without hemorrhage in the eyelid and under the conjunctiva, recovery will be rapid and complete.

Where the injury causes damage to the iris, ciliary body, choroid, lens, retina or optic nerve recovery will be slower and less complete and in many cases useful vision will never be recovered. When the injury is limited to the eyelids and conjunctiva it is often impossible to be certain that no further damage has been done, as many cases will present so much swelling of the eyelids that it is not possible to make an examination of the deeper parts of the eye.

Prognosis must be guarded till the swelling decreases and allows one to make the necessary examination to determine the exact extent of the injury. The injury to the iris may be so minute that it is not detected at first, showing up later as a slight inequality and displacement of the pupil and it may be so great that the iris is practically destroyed.

Small radial tears at the pupillary margin of the iris always leave an irregular displaced pupil and a more or less complete paralysis of the iris movements. When the wound of the iris is at the attachment to the ciliary body or between that and the pupillary margin we will have a false pupil. These changes are permanent as the iris tissue does not heal as other parts of the body do.

Injury to the ciliary body, choroid and retina always leave permanent damage, the amount depending on the extent and location of the injury.

The usual lesion found will be a rupture with more or less hemorrhage and the blood will often make it impossible to locate the break for some time after the accident.

A fairly common result of contused wounds is the so-called "hole at the macula." These cases may present no discoverable lesion at the time of injury, in fact usually do not for some time, then at a later date an atrophy of the retinal fibers at the macula develops with loss of central vision permanent in character.

The lens may become opaque, a traumatic cataract, a result of some small rupture of the capsule in most instances but due to nutritional disturbance in some cases.

The treatment indicated in the minor injuries includes such measures as application of ice if injury is very recent, boric acid wash, one of the colloidal silver salts

and atropin in case the iris becomes inflamed.

In cases of injury of the pupillary margin of the iris the question as to the use of atropin will have to be considered. Theoretically atropin may increase the tear in the iris by dilating the pupil but the question is an academic one as it will be found necessary to use atropin to combat the iritis which will develop from the injury in most cases.

When the deeper structures of the eye are involved treatment will be along the same lines, as about all that can be done is to treat the inflammation following the injury.

The damage is done to the eye at the time of the accident and our only recourse is to try to prevent any further destruction by subsequent infection or inflammation.

By way of illustration the following cases are reported:

A white male, aged 17 years, was struck in the right eye by a small rock thrown with a "nigger-shooter" thirty minutes before I saw him. He stated the distance was about seventy or eighty yards so the force was not great.

Examination showed the left eye had standard vision and was normal. The vision in the right eye was perception of light only. There was a small central abrasion of the cornea, the anterior chamber was half filled with blood, a small tear in the upper outer pupillary margin of the iris and the iris was half dilated and fixed. The treatment consisted of cold applications and argyrol, but I had to use atropin within forty-eight hours on account of a beginning iritis. The eye cleared up rapidly and was entirely free of inflammation in three weeks.

One month later vision of 20/300 was improved to 20/60 with a minus 4.00 D. sphere. Fundus was normal.

Eight years later the vision was 20/60 with a plus 1.00 D. sphere. The iris was 2/3 dilated and immobile and there is a well marked central opacity in the lens which will almost certainly progress to a complete opacity. The left eye has remained entirely normal.

A negro male, aged 50 years. A week before I saw this patient he was at a wake and fell asleep in a chair. Someone slapped him across the face to rouse him and they succeeded well. Vision was abolished in the right eye at once and he had been in great pain ever since injury. He had a complete anterior dislocation of the lens. The lens was removed without any great difficulty and the eye made a good recovery but no vision remained and at the last examination it was impossible to see fundus as the vitreous was still clouded enough to prevent a satisfactory examination.

A negro male, aged 16 years, was struck in the left eye by a baseball eight months previously. He declared the eye was never sore or inflamed following the accident, but during the following four months vision was gradually lost.

Six months preceding examination he was struck in the right eye by a green peach and the eye was slightly inflamed for a week. This cleared up and the eye was all right so far as he knew. Vision was gradually lost in this eye also. He has a cataract in each eye and vision equalled perception of light. The iris was normal and light projection was good. The left lens was needled and six weeks later the posterior capsule was opened.

At the last examination he had vision of 20/100 with a plus 5.00 sphere.

A white male, aged 12 years, was struck in the right eye by a dried china berry three days previously, thrown from forty feet distance. For twenty-four hours the eye appeared all right, a little sore but no other symptoms. Then vision was suddenly lost and intense pain developed.

The left eye was normal. It was questionable whether the right eye had perception of light. The anterior chamber was full of blood and the whole eyeball was intensely inflamed.

A very stormy month followed, marked by very severe symptoms, intense pain, a great amount of chemosis, and marked constitutional reaction, nausea, vomiting, fever, lasting several days.

Treatment was along the usual lines with a very grave prognosis.

One consultant advised immediate enucleation on account of the danger of sympathetic inflammation developing in the good eye. Another consultant in whom I have always had great confidence, advised that there was no immediate danger.

The eye developed one symptom that is extremely rare, the entire cornea was stained a light brown color by the blood pigment from the blood which remained in the anterior chamber so many weeks. In clearing, the cornea first cleared at

the margins, as is the rule, and gradually approached the center. This clearing process was slow taking thirteen months for completion.

At one stage I was certain that the lens was dislocated into the anterior chamber. The picture of the light brown center through which nothing could be seen and the perfectly clear narrow ring of cornea at the limbus had me guessing for weeks. The final result was a very good appearing eye with vision of 20/60 and the eye has been perfectly quiet for ten years. The left eye remains normal.

DISCUSSION.

Dr. Travis: I enjoyed Dr. Bell's paper. As to rest in contusions of the eye I will say that during my general practice we had some trouble with hit injuries. For instance, had patients who had pain from injury, but who would go around until the eye became inflamed. Then you could not tell what you had on the inside. If the patient is put to bed probably you can save the eye, but if he goes on to work the eye is lost. A strange thing, the eye generally doesn't hurt and goes out.

Last year I had three cases of contusions of the eye. The pupils were dilated and sight was almost entirely lost.

I had a case recently of a lumber hauler who drove under a tree, and was hit by a limb. He washed the eye out, and kept on hauling lumber. Then he came to me about two weeks afterward on account of a disturbance of vision. He could not see his fingers except in front and close to the eye. The eye rested under treatment and the vision was restored.

I have another case to report, the result of an automobile accident. The lid was hit on the outside and swelled. There was no break of the cornea.

A negro boy, about eighteen months ago had a whip with knots in the end. In an argument with a mule the whip backfired and hit him on the eyelid, and it swelled up. He went on two or three days and finally came in on account of pain. I dilated the pupil. A traumatic cataract had formed, and was perfectly white. I wanted to get some sort of fee, and planned to make arrangements for him to go to the hospital. After two months he came in. Inflammation cleared up, and the cataract was absorbed.

Dr. Johns: After hearing the excellent paper prepared by Dr. Bell, I want to discuss a case that came under my observation, a case of a little child. The family wanted to go over to the coast and spend the summer. The father and the chauffer were on the front seat. The mother together with the nurse and a little two-year-old child were on the back seat. Another car passed, a higher powered one, and in doing so threw up a lot of gravel. Some of the gravel hit the windshield and broke the glass. A piece of the glass hit the baby in the eye producing a cut of the cornea with protrusion of the iris. I thought iridectomy would have to be performed. I had the iris pushed in, and at the end of a few weeks under treatment the child made an uneventful recovery. The eye looks as if iridectomy had been performed.

With the modern conveniences now at hand wonderful things are being done.

Dr. Arnold: That case reminded me of one I saw two years ago in which a car struck gravel. Some of it was thrown up and hit the windshield and knocked out a piece of glass. The person was struck in the eye making a cut on the cornea.

This is the only case of the kind I ever saw.

Dr. Travis: With my long experience in Chattanooga there were many cases of injuries by penetrating wounds where we removed steel by magnets.

Some of them were contused wounds of miners of coal. These were the hardest cases we had to deal with on account of ulcerations. They gave more trouble and were a longer time curing up.

Dr. C. C. Buchanan: I had a man about forty years of age come in. He had been hit in the eye by a small knot off the end of a whip. The anterior chamber was completely filled with blood, and so I couldn't find a break in the cornea. We sent him to the hospital. Unfortunately he was in a ward with four or five other negroes. Two died that night and he left next morning.

The lumber people wanted a prognosis, and thought the eye might have to be enucleated.

He left town and was gone three months. When he returned he had had a complete cataract operation which left a good looking eye, but with very little vision.

All these cases, as in the case of the negro, are very interesting.

Dr. Bell (closing): Dr. Johns brings out the idea of rest. About as good a thing as we can do sometime is to stand by and look on.

In some cases the best thing to do is to enucleate because the eye is totally destroyed.

If we try to save the eye it will take months of treatment and, then, the eye often must be enucleated on account of the dangar to the other eye.

Take the eye out, and in a week or two the patient is able to go back to work.

Of course, if he has a good appearing eye that gives no trouble I think it best to let him keep it even if there is no vision.

NASAL FRACTURES AND THEIR TREATMENTS.*

VAL H. FUCHS, M. D.,

NEW ORLEANS.

Nasal fractures, for some reason, have never been accorded the importance which they deserve, and it is only in the last few years that much has been written concerning their treatment. When we consider that the nose is the organ of respiration and olfaction, we must at once be struck with its importance. Again, from an aesthetic standpoint, the nose has always played a prominent part. In fact all methods of treating nasal fractures in the past were to obtain a pleasing aesthetic result, and all the true physiological functions of the nose were completely lost sight of.

To obtain a nice correction of an external deformity is always desired, but it should not be obtained at a sacrifice of any of the physiological functions.

For this reason alone, I believe all nasal fractures should be treated by a competent rhinologist and should be taken out of the hands of the general surgeon or family doctor entirely.

When we remember that the structure making up the nasal contour (nasal bones, nasal processes of the superior maxillae, the triangular and lateral cartilages and columella) are right under the skin, and that any irregularity of these structures will in time become very pronounced and produce a notable disfigurement, which time does not lessen, but on the contrary magnifies, we can more readily understand that a rhinologist, who is more intimately associated with the nasal structure, can better handle their fractures.

The nose, since it occupies such a prominent place on the face, is naturally more subject to trauma than any of the facial bones. These fractures are comparatively frequent, and are not as rare as some of the text books would lead us to believe.

Roughly, nasal fracture can be divided into two classes:

Fig. 1. Lateral displacement following nasal fracture.

Type 1—Lateral displacements, that is where one nasal bone is depressed and the other pushed out. These are caused by blows or injuries from the side, causing the nose to be displaced in the direction of the force of the blow. This can be strikingly brought out by drawing an imaginary line from the glabella to the philtrum, and the displacement to one side or the other is readily discernable.

Type 2—Sunken noses, which resemble the syphilitic noses and are caused by blows directly on the nasal bones. In this type the bones are either comminuted and depressed, or the nasal bones are so forced down that they override the nasal processes of the superior maxillae.

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

The symptoms are pain, swelling and deformity, accompanied by bleeding and perhaps crepitation. It must always be remembered that crepitation may often be elicited with gentle palpation, when a firm grasp determines little or nothing. Immediately after the blow is received, the deformity is visible, but it is soon masked by the swelling, which forms with very great rapidity, and it does not become obvious again until the swelling has passed away by which time the fracture has united and the deformity is fixed.

With a fracture of the nasal bones and their displacement, there is always associated a bending or fracture of the septum, either of the cartilagenous or of the osseous portion, or of both, and the septal lesion is frequently associated with the formation of a septal haematoma, which, like the external swelling, conceals for a time the presence of the septal deformity.

Fracture of the perpendicular plate of the ethmoid may be an accident of the utmost gravity if the force has been sufficient to cause fracture also of the cribiform plate, and the opening of the anterior cranial fossa.

The upper three-quarters of the nasal bones rest upon the perpendicular plate of the ethmoid, while the lower part rests on the cartilagenous septum. Fractures of the nose, luckily, most often affect the lower fourth, wherein the fragments are usually pushed backwards, but if the force is great, the cartilagenous septum will also be found bent, broken or even dislocated from its resting groove in the vomer or the maxillary ridge.

My line of treatment follows the technique as brought out by Lee Cohen some years ago. No longer is an attempt made to set these fractures without a general anesthesia. For a while local was used, but the procedure always seemed to cause pain, no matter how much care was used to produce good anesthesia. Nitrous oxide is the anesthetic of choice, and the patients

Fig. 2. Appearance of patient with splint and bandage applied.

receive so little, that it is possible for them to leave the hospital immediately after they react. Before beginning the anesthetic, a piece of ordinary writing paper is placed over the nose and a pattern made. This pattern is placed on a piece of 18 gauge copper sheeting and the proper size splint is cut out. The copper is then covered entirely with adhesive plaster, and moulded to fit the nose snugly, after the fractured bones are put in their proper position. The advantage of this thin copper, is that it can be readily bent, so that pressure can always be placed on the desired point.

At one time, we used dental compound, but it was discarded, for, in addition to its weight, it did not seem to give as satisfactory results as the copper. Again, at future dressing, it may be desirable to place pressure in a different manner, and this can be easily done with the copper splint, whereas it is impossible with the dental modeling compound.

As soon as the patient is asleep, a post-nasal pack is placed to prevent any blood running down the trachea. An Adams forceps is used, with one blade within the nose, usually covered with a piece of rubber tubing, and the other on the outside and the nasal bones can be manipulated and forced back into position very readily. When the fragment is displaced inwards, any flat metal elevator, of sufficient strength, will lift the bones outwards. The final moulding of the parts can be shaped with the fingers. Both blades of the forceps are placed within the nose, one on each side of the septum, and any irregularity or displacement is corrected by the proper movement of the forceps. It is our custom to place a small pack covered with vaseline or K.Y. jelly high up on the side where the depressed fragment was, so that there will be no displacement. At times, a small rubber tube can be placed along the floor of the nose so that the patient can breathe, and the pack is placed above this. Usually, it is only necessary to pack one nasal cavity, and this pack can be left in for 5-7 days, when the first dressing is changed. It is always a good idea to overcorrect the deformity slightly, for the end results will be much better. An haematoma of the septum should be thoroughly incised and drained, and the entire nasal cavity painted with a 4 per cent solution of mercurochrome.

Fig. 3. End results following treatment of patient shown in Fig. 1.

After the fracture is set and all packings are satisfactorally placed, the copper splint is lined with a few layers of surgical lint, properly shaped and applied to the nose. It is held in place by a strip of adhesive plaster, stretched across the nose, from one malar bone to the other. Areas are cut from the adhesive, around the eyes, so that there will be no obstruction to vision. Cross strips of adhesive are carried from the forehead, just above the eye, to the opposite cheek and more rigidity is obtained.

An abrasion or external injury of the skin surface is not a contra-indication to the splint. Sutures can be readily placed, but in these cases we cover the entire wound with a small square of gauze before applying the splint. The first dressing is made at the end of 5 days and the splint is worn for from 2-3 weeks, changing the dressing every 3-4 days, and after this the splint is worn only at night for about 2 weeks longer.

SUMMARY.

1. Set all fractures of the nose, as soon after injury as possible.

2. Nitrous oxide anesthesia is preferable to local.

3. Wounds of the skin, after thoroughly cleansing, may be sewed, and in no way contra-indicate the immediate application of the splint, when patient is seen soon after accident, prior to any infection.

4. Splint should be worn for 2-3 weeks.

DISCUSSION.

Dr. Jno. T. Crebbin (Shreveport): Dr. Fuchs has certainly obtained excellent results in the cases which he has presented. I wish to emphasize an important point brought out, that is, all work of this character should be referred to a specialist if at all possible, for one conversant with diseases and injuries of the nose is more competent to treat these patients.

It is true, that frequently it is impossible for a specialist to see these patients first. If this be the case, the injury should be repaired by the most convenient doctor, and then the patient should be examined by a specialist.

One should always bear in mind that these injuries and deformities have a tendency to become worse.

Possibly we are seeing more of these cases than heretofore, due to reckless automobile driving. Many of these nasal injuries are due to one being thrown against the wind shield, quite a few resulting in injury and lacerations to the nose and face. It is in these cases that we find the most difficulty, for it is almost impossible to apply the external splints as outlined. Fortunately, healing takes place very rapidly.

A patient is always conscious of an external deformity to the nose and unfortunately every one notices it, also, but the most serious complications are that there is almost invariably a deviation of the nasal septum, which may press against the turbinate bones, interfering with ventilation and drainage. This is but another argument for a specialist to treat these cases.

Nasal splints within the nose should never be used if it is at all possible to do without them.

Dr. Rufus Jackson (Baton Rouge): I do not want to assume a controversial attitude nor say anything that would bring on any such impression, but I do want to take a half-hearted exception to the stress that the gentlemen preceding me have laid to the idea that specialists alone should deal with these cases. I think that should be qualified, with a little more stress on what Dr. Crebbin said, that, wherever possible or practicable, the specialist should care for these cases.

A great many of these cases are seen by some of you gentlemen who cannot get them to a specialist, and if you would try to send them to a specialist, they would go home and try to clear up, itself. Those are the cases that give life-long deformities, because that same man or woman will not go later and have a correcting operation, requiring a rebreaking of the nose and taking out a great deal of the septum which has held in a distorted position, and, for that reason, I would like to direct a few remarks to the practical correction of these defomities immediately or as soon after accident as possible, by even the general practitioner.

If you have on hand some sort of an instrument, preferably of the type that we use as an elevator, which is almost as thin and sharp as a knife, you can use that for every nose you have, and I say an elevator, I mean the submucous elevator, it should be straight. In that way, you can get that into the nose of the smallest child, and to prevent cutting, you can bind about it or wrap about it just that amount of cotton which you desire to give you the proper thickness which you like. Now, anybody can observe this technique or practice this technique, because if your wrapping is too thick, your instrument will not go high enough. You measure from the outside to see how high you are going.

Now, the rationality is this: A fracture of a nose is a simple affair, because of the too overlapping nasal nose, no matter if you have a portion broken out or have the whole outfit broken, if you take the elevator and life up and press back, I should say that 90 per cent of them will go in position and remain so without a splint.

I would accentuate to the specialist or the general surgeon, because the general practitioner would not be inclined to put a packing there, but I would accentuate to the surgeons, do not put splints or excessive packing inside the nose, because, if you do, you get a pushing out of the nasal process or superior medulla, and that tends to give a broad, thick nose. In other words, we found in Moser's Clinic in Boston that all the outside dressings were a snare and delusion, and only when we were trying to make an outside dressing that would give a correction, we would overlook the fact that we had not prepared ourselves.

The old nose that has been fractured and put in position, stays in position and requires no dressing on the outside and none inside, except perhaps one very sharp wire splint to hold it up. So, a fresh fracture, in at least 90 per cent of them will require no packing on the inside and no dressing outside. That is left to the conscience of the general practioner or the general surgeon, whether he gets these cases to an ear, nose and throat man to have them cared for and checked over after it is done, but the thing I want to make a plea for is that portion of our population that is going to be difficult for you to get to a specialist, even though one is available. Don't feel that your duty to that man's nose is discharged, or your obligation is discharged, until you have corrected it, because it is a very simple

statement of affairs and not as important as a fracture around the elbow joint, and some of you, at least, still attempt those.

Dr. J. A. Carruthers (Baton Rouge): Dr. Fuchs' explanation and method of treatment are identical with the experience I have had, and I use practically the same instruments that he uses. This instrument is from the old Ash set, and that is what I use always. The only difference in my technique and his is that I have never had occasion, yet, except in one instance, to use any support after the operation; they nearly always stay in place if they are put back in place as soon after the accident as you can get ahold of them.

The doctor's conclusions were the same as I have found, with the exception of the dressings; however, they are a wise precaution.

Dr. N. F. Thiberge (New Orleans): Before the discussion is closed, I would like to ask the doctor to specify the time for the external splint to be kept on. We know long bone fractures require a longer time, but I understand with the nose, not so much time is required, and I want to know what is his practice in leaving the splint on a certain number of days.

Dr. Fuchs: About infections on the outside. When you have an injury on the outside there is no contraindication to putting on a splint. These cases are seen before infection takes place, and there is no danger in putting on the splint, because those injuries clear up very rapidly. I remember a man going through the windshield of his automobile, about eight months ago, and the glass cut through, dividing the nose into an upper and lower half. The cut edge was sutured, and you cannot see a scar. In fact, Dr. Carter, of New York, is authority for a statement that, many years ago, in one of the foreign countries, one of the punishments for the prisoners was to cut off the nose. They found it was not a good punishment, because as soon as the nose was cut off, the prisoner would pick it up and have somebody sew it on, and collateral circulation was established and the deformity was avoided.

If any of you men have had the experience of removing a rhinophyma from the nose, you know what the blood supply there is, and what hemorrhage you get. In fractures of the perpendicular plate, about putting it in packs: I would not use a pack where there was a fracture of the perpendicular plate, I would rather have free drainage than putting in a pack. When speaking of packs, I do not mean putting in large packs, we use a very, very small pack, and that small pack is high up and just to hold that one bone in place.

When we are talking about not putting on splints, I went through that period of not putting on splints, but patients can turn over in bed, during their sleep, and get that fracture out of position. We have seen it happen, before we used splints, and it is such an easy thing to put on a splint and wear it that way, we do not hesitate to do it, and we let it on about two or three weeks, constantly changing it every third or fourth day. It is not necessary to keep the splint on as long as it is on the long bones, you have nothing to pull the fragments away, there is no muscle displacement, as there would be in long bones.

About these cases going to the specialist instead of the general surgeon: I would say, let the general surgeon do it, if he knows how to use the head mirror properly. You say you tell them to go to the specialist and they won't go. What is the difference of having them go now or later? Unless a man is capable of using a head mirror and seeing what deformity he has of the septum, he better send them to somebody else who can use it. I think that answers all questions.

A PLEA FOR THE SELECTION OF THE PARS MEMBRANACEA IN PUNCTURING THE MAXILLARY SINUS.*

M. P. BOEBINGER, M. D.,

NEW ORLEANS.

The object of this monograph is to enlist and to stimulate more interest in the selection of the middle meatus through the pars membranacea when there is sufficient evidence or cause for puncturing and irrigating the maxillary sinus.

In the selection of this route the author was prompted by a desire to minimize pain, to lessen shock and to cause less trauma and subsequent edema and inflammation which necessarily follows the use of a trocar in antrum puncture and to allow early use of irrigation following the operation, which is painful and often delayed when the inferior meatus route is selected.

The writer's experience in over one hundred cases dates back more than two years,

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

during which time only two failures were recorded, due to deviated septa.

It is not the purpose of the essayist to lay claim to priority or originality in this article, merely to contribute and to publish my experience, use and findings of this route. Killian and his pupils have used this method for years without accident.

Hajek, in his latest text book, says he uses this method in cases of mild chronic empyema of the antrum in old persons in whom a greater interference could not be undertaken. Eicken's needle for puncture through the pars membranacea has been used by him for years without accident.

Fletcher's trocar needle, which is made at an angle of forty-five degrees for use through the pars membranacea, is being successfully used and does away with all fear of accident.

Siebenmann was one of the first to make use of this route, using a blunt cannula.

Kirbo also used the same method, claiming in his experience a large opening made in the pars membranacea has a tendency to remain open permanently. My own experience bears out the latter's statement. Onodi makes use of this route and enlarges his original opening by dilatation.

Zuckerkandl has designated the pars membranacea of the middle meatus as that point at which the maxillary antrum may be most easily opened on account of its thinness.

Brief anatomy of the middle meatus: The middle nasal passage includes that portion of the lateral nasal wall lying above the inferior turbinate and below the bulla ethmoidalis and the posterior attachment of the middle turbinate.

It is, therefore, bounded, anteriorly, by the bulla ethmoidalis; above and posteriorly, by the attachment of the middle turbinate; externally, by the uncinate process, hiatus semilunaris and pars membranacea and below, by the attachment of the inferior turbinate. Internally it is bounded partially by the middle turbinate and the nasal septum and in front it opens into a broad portion of the nasal cavity, called the atrium of the middle meatus, which opens into the posterior portion of the vestibule. In brief, the middle meatus is situated between the attachments of the middle and inferior turbinates, in front by the vestibules of the nose and extends back to the attachments of the turbinates. The lateral wall of this meatus can be satisfactorily studied only after the removal of the middle turbinate.

Descriptive Anatomy of the Pars Membranacea:—The pars membranacea is the thinnest portion of the internal wall of the maxillary sinus, and without any bony structure in its construction. In the skeleton the space occupied by the pars membranacea is always present. In the recent state, however, this defect in the bony structural development is replaced by the mucoperiosteum of both the nose and the maxillary sinus in the following manner: The mucous membrane and periosteum of the nose are so intimately interwoven that it is almost impossible to separate them, consequently they form a continuous covering for the osseous structure beneath. This membrane in the region of the uncinate process does not dip down into the empty spaces, but bridges them over, thereby forming an unbroken wall, except in one small space between the posterior third of the uncinate process and the bulla ethmoidalis, where an aperture is constant (ostium of the maxillary sinus).

Precisely the same condition prevails in the lining membrane of the antrum, and, as a consequence, we have the spaces around the uncinate process covered in by two layers of mucoperiosteum, thereby completing the partition between the nose and the maxillary sinus. This part of the nasal wall is known as the membranous portion (pars membranacea) and is of surgical importance on account of its being

the thinest and most resilient part of the wall.

Boundaries of the Pars Membranacea:

Above: By the bulla ethmoidalis.

Behind: By the palate bone.

Below: By the insertion of the inferior turbinate and in part by the uncinate process, thereby enclosing the posterior portion of the uncinate process in its boundaries.

The literature and text books report many accidents from puncture through the inferior meatus. Butt reports severe hemorrhage. Some authors report air embolism; Skilleren, Claus, Halle, Hajek, Ballenger, Phillips, Hays, Loeb, Gleason and others report accidents from this route. Most rhinologists avoid puncture through the middle meatus because of an occasional anomalous relation to the orbit, in this anomaly the experienced rhinologist should not be concerned since the depth of the middle meatus may be previously determined by rhinoscopic and skiagraphic examination. The danger of puncturing the antrum through the middle meatus is injury to the orbit and its contents. One may dispel any fear on account of selecting the middle meatus over the inferior method as the middle meatus route is only about one-eighth of an inch higher and the attachment of the inferior turbinate, anatomically, is so placed that it almost divides the partition (lateral nasal wall and antrum) into equal partitions. The previously mentioned authorities and their experiences should be sufficient proof and evidence for others to use the middle meatus route. Fletcher's angular needle and the author's trocar make it almost impossible to have an accident.

Technique: Bearing in mind the natural difficulties, it is at once evident that lack of space is the chief cause of our inability to successfully carry out this procedure. In order to more fully appreciate the area through which the surgeon introduces the trocar into maxillary sinus, and to locate and identify the pars membranacea, it is necessary to first draw an imaginary triangle; we proceeds as follows:

Draw an imaginary vertical line from floor of frontal sinus (a) (about where frontal-nasal canal should be) to anterior attachment of inferior turbinate; (b) then draw a horizontal line parallel to the attachment of the inferior turbinate to its posterior tip; (c) then draw a vertical line up to cribriform plate of ethmoid bone; (d) then bisect this square or draw another line from (a) to (c). The surgeon should find the area or pars membranacea at the apex of this triangle A-B-C.

The author offers this triangle to the profession, feeling that it will be of material help in locating and identifying the pars membranacea.

To obtain as much working and eye space as possible and at the same time anesthetize the parts so they will be insusceptible to pain, a 10 per cent solution of cocaine hydrochloride with several drops of 1/1000 solution adrenalin chloride is applied over inferior turbinate and area of pars membranacea; after a pause of sufficient time the operator should identify his land marks and the operation should be undertaken, special care should be exercised in thoroughly cocanizing and shrinking of parts, a good view is necessary for the success of the operation. The surgeon should be skilled and experienced; use a heavy applicator wound with a thin layer of cotton for exploring the field (pars membranacea), as this area can be felt and outlined before use of the trocar. When the surgeon is satisfied, he may proceed with the use of the trocar, care being taken as to the amount of force used and the direction of the trocar. The author advises that the direction of the point of the trocar should "always be downward", (elevate arm and produce one-half circle)—"force is positively to be avoided"—remember that one is not puncturing osseous, but membranous tissue. After successfully puncturing the

antrum, remove the trocar and use the sound, then proceed to irrigate the cavity. Have the patient use a piece of cotton in the nose for several days, no other after care is usually necessary.

Before closing, permit me to exhibit the trocar used and recommended by the author in over one hundred and eight cases. It is light in weight and durable, with plenty of length to the shank, but with a very small curve, the distance (about three-eights of an inch) from shank to tip of the trocar makes it exceedingly safe in puncturing the maxillary sinus through the middle meatus.

ARTHRITIS.*

JOHN T. O'FERRALL, M. D.,

NEW ORLEANS.

It is well for us to refresh our minds occasionally upon the classification of the types of arthritis and the interpretation of the signs and symptoms encountered.

The proper treatment to be instituted will be more certain in its results if more care is given in making an investigation of the causes of the joint inflammation. Despite the large amount of research and investigation done upon this subject, it remains a perplexing problem for all concerned in its diagnosis and treatment. The diversity of opinion held by investigators and all responsible for its treatment is tantamount to the perplexity of the problem.

Probably the types best understood and most easily handled are those classified as acute metastatic or pyogenic infections, secondary to an easily demonstrable focus, usually acute tonsils, proven apiceal abscesses, acute gonorrhea, etc., etc. The clinical symptoms are those usually encountered in inflammatory reactions, such as, acute onset, general malaise, moderately high or high temperature, local redness, heat, swelling and tenderness. It is frequently polyarticular but often monarticular. Progressive or alternating monarticular arthritis, soon locating in one major joint, always suggests gonorrheal origin.

General elimination, established "anti-rheumatic" sedatives such as the salicylates, aspirin, oxyl iodide, etc., etc., frequently controls the symptoms while the infectious focus is being searched for and frequently is found. Its removal, followed by rest, methods of physical therapy, consisting principally of heat and very careful orthopedic massage, prevention of deformity, in case of structural damage, generally offers satisfactory relief.

In acute monarticular involvement, especially gonorrhea, or the polyarticular type in which a major joint stands out in most acute distress, aspiration should be practiced. If a cloudy or turbulent fluid is recovered, which under the microscope reveals many pus cells, free incision of the joint, associated with copius lavage of the joint cavity with several gallons of saline or 1-20000 bichloride solution, will prevent many a stiff joint. It is best in such cases to suture the joint capsule to the muscular structures, closing only the skin. This permits drainage into the tissues and possibly an autovaccination. Extension on the affected extremity with very early passive and active motion assures preservation of function.

The above mentioned acute type often becomes a subacute condition under inactive, indifferent or improper attention. The patient establishes a certain amount of tolerance or immunity to the pyogenic infection or the invading organism is of moderate virulence. Sedatives only may have been given instead of prompt eliminative treatment and eradication of the offending focus of infection. There is soon no redness of the affected joint or joints and the swelling abates to some extent along with the lessened pain and disability. The patient and doctor are somewhat encouraged and experience a false security thinking the condition will soon clear up entirely. A persistently sore, moderately

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swollen joint or joints persist with a slight general reaction in the form of temperature. When such cases are seen, several weeks after the onset, more or less structural damage has taken place in the joints, making the problem more complex and the prognosis less favorable. The treatment must follow that mentioned in the acute type, namely, very active systemic elimination, immediate removal of all the foci, including the offending focus of infection, associated with various forms of physical therapy, primarily heat, intelligently applied orthopedic message and gentle manipulation of the affected joints. Existing residual deformities should be carefully corrected and proper weight bearing and functional lines and positions maintained.

Other conditions, such as, tubercular, syphilitic and gouty arthritis, are subacute when seen by the family physician, disguising their true seriousness unless carefully studied and accurate diagnoses made. Each one of these conditions, if passed on to the orthopedist, requires special, prolonged and persistent treatment, as they have passed into the chronic stage when seen by him. Each condition deserves more than the few cursory remarks that are here given to them. They are, however, well recognized clinical enterties and their diagnosis often more certain than the complex problems presented by the truly infectious or toxic arthritides and the debatable atrophic and hypertrophic varieties which are the topic of this discussion.

The truly chronic varieties of arthritis include those whose cause and origin are most debatable and whose treatment and cure are most complex. I refer first to the so-called metabolic arthritis, or most commonly known, as osteo arthritis or hypertrophic arthritis. This type of joint lesion seldom occurs before the age of 40, or that age when metabolism is disturbed, the intake of food remains unchanged but the elimination of body waste slows up and the methods of living become more sedentary. Glandular activity takes on definite changes and excess weight indicates the ingestion of more food than the body economy demands. This failure of rapid elimination, together with frequent trauma, whether occupational or not, offers a rational theory of the origin of this type. (Painter).

This variety of arthritis is quite characteristic and consistent in the involved joints in the different sexes. Spines and hips are the most frequent sites of the lesions in men, wheras, the knees and fingers are most frequently affected in women. Greater trauma and stress takes place in these joints mentioned, as is seen by the activities of the sexes, whether occupational or otherwise. This joint involvement is essentially chronic in its onset and course. It appears insidiously and without constitutional symptoms. There is no temperature rise, no local redness and rather thickness of the periarticular tissues and bony enlargement instead of usual swelling. The patient feels as well as ever generally but one or more joints are painful and the activity of the same is interfered with. Permanent deformities of a moderate degree occur in the form of slight flexion of the joint, produced by the overgrowth of bone (Heberdens nodes) along the joint surfaces. The roentgen-ray findings are characteristic and show the overgrowth of bone along the joint surfaces as a spur formation or lipping of the articulations.

In considering the truly chronic varieties of arthritis, I refer, in the second place, to the atrophic or nutritional type or, the correctly called, arthritis deformans. The lesions which characterize this joint inflammation are far more common in women than in men. As Dr. Painter has so aptly remarked, "the conspicuous etiologic suggestions which one meets in many patients, suggestions which fit in well with the character of lesions which characterize this arthritis, are a history of nervous shock, or more often from an accumulation of nerve trying circumstances. Child bear-

ing, particularly when this has been of frequent occurrence and with but little time between pregnancies, seems capable of setting the stage for this variety of arthritis. The wear and tear of life bears more heavily on some than on others and doubtless a lower threshold of nervous stability may have something to do with permitting the annoyances and physical hardships of life to crowd in upon those so constituted than upon others." The age incidence of this type of arthritis indicates that it occurs during the early adult period, *i. e.*, 30 to 40 years. Occasionally a similar syndrome occurs in childhood, namely, Still's disease. It is seldom accompained by constitutional symptoms, such as, temperature, anemia, malaise, etc., which characterize the acute or subacute infectious types, especially in the early stages. It is always polyarticular and it seldom attacks the terminal phalangeal joints, which is so characteristic of the hypertrophic type. The hands, wrists, knees and ankles are the joints most frequently selected for this disabling invasion. The joints do not show typical inflammatory swellings but thickening of the soft parts, producing a fusiform enlargement of the joints and the glistening skin drawn over the bony shafts. There is at first slightly increased surface temperature and soon various deformities occur due to muscle spasm and subluxated joints, as abducted fingers and wrists. There is general atrophy of skin, cartilage and bone, even including the nails. Eroding cartilage and periarticular pannus produces moderately severe pain and much disability.

The roentgen-ray findings are quite characteristic. There is general bone atrophy, with narrowing of the joint spaces due to the thinning of the cartilage. Ankylosis takes place upon complete erosion of the articular cartilage.

While an attempt has been made to simplify the classification of arthritis, there are many cases which are difficult of classification, rendering diagnosis and adequate treatment even a greater problem.

Treatment of any of the varieties of arthritis offers an opportunity for the medical attendant to show his adroitness in making the diagnosis and requires the institution of sound therapeutics. Too careful a study of each individual case seems impossible. One cannot go into too much detail in taking a history of the onset, the progressive development of the lesions and the distribution of the joints as they become involved. All possible foci of infection should be cleared up as promptly as possible, whether they have been found to have a direct bearing upon the joint lesion or not. It is a mistake to eradicate possible foci of infection until they have been proven a menace. I have particular reference to the extraction of teeth indiscriminately and the removal of unoffending tonsils, gall-bladders, appendices, etc.

A most careful examination seems of greatest moment in these cases, as it will require the greatest amount of persistence and ingenuity to find the cause and apply the proper treatment. It is often the case that the urine, feces and blood have been properly and frequently examined, but the findings have not been intelligently interpreted, therefore losing an important factor for diagnosis. Too little significance, for example, is given to the simple test of indican. A clue for treatment may depend upon just such a test.

Any examination for arthritis today is incomplete without a careful roentgen-ray examination of the intestinal tract and visualization of the gall-bladder. Does an intestinal stasis in the small or large intestine exist? Is the colon spastic, does a colitis exist? These are important questions to have answered for an arthritic, probably equally as important as the roentgen-ray findings of the joints themselves.

After the infectious foci have been investigated and the offending focus removed, the infectious or toxic arthritis, as far as treatment is concerned, becomes a problem similar to the other varieties of

arthritis. General elimination is begun in the form of "cabinet baths," a larger intake of fluids, free purgation and colonic flushes. In the past too little attention has been given to the value of these irrigations with a rectal tube and a large quantity (2 gallons) of saline solution. They should be frequently repeated, once daily for ten days to two weeks, then every second or third day for several weeks longer. It is found that, even after several weeks of quite active purgation and daily colonic flushes, very ancient material is recovered from the intestinal tract. It is not surprising, therefore, that such material furnishes sufficient toxemia to produce joint inflammation.

If the gastro-intestinal roentgenograms have revealed a stasis in the small intestine and a spasticity in the large intestine, carefully thought out medication will bring the desired results. The saline purges, fluid extract of belladonna, the salicylates, bromides, etc., all have their place. The gastro-intestinal specialists offer us the necessary valuable help in encouraging the intestinal tract to properly eliminate its toxic contents.

The addition of the various so-called antirheumatic sedatives, previously mentioned, are valuable aids in temporarily relieving pain. Probably the most prominent and efficient among these are aspirin, atophan, oxyl iodide, etc., etc. Guaiacol carbonate in large doses (10 gr. to 20 gr.) over a long period of time is of very great value in the cases of hypertrophic arthritis. In fact, in moderately severe cases it frequently acts almost as a specific in allaying the symptoms.

The gastro-intestinal roentgenograms often reveal to us the existence of a visceroptosis, a condition which so frequently exists in those patients suffering with arthritis, especially the nutritional or atrophic type. The mechanical correction of this visceroptosis, by means of well established lying, sitting and standing positions, corrective exercises, braces, corsets, etc., often play a much more important part in the relief of the arthritis than one would at first think. Many of these mechanical measures can and should be carried out even after the patient has become more or less inactive.

Local treatment of the joints involved concerns itself first with the prevention of deformities. If tendon contraction and muscle spasm are beginning, the application of moderate extension and night splints, and, in advanced cases, retentive plaster casts and braces become necessary. The local application of the various forms of physical therapy, especially heat, is distinctly indicated. The engorgement of the affected parts with blood promotes elimination, assists in the prevention and absorption of fibrous tissue and relieves pain. Carefully applied orthopedic massage and gentle manipulation, which should usually follow the application of heat, further promotes elimination, prevents deformities and assures joint function.

The indiscriminate, and I believe improper, use of many of the modalities of physical therapy is to be deplored. It is unfortunate that use is made of many pieces of apparatus when the operator is not qualified by training or experience. Many of these modalities which have real value are becoming unpopular and confidence in them lost because of such misuse. This not only applies to the purely mechanical devices, but also to orthopedic massage, proper manipulation and passive motion. Trained workers are scarce and such work done by the untrained and inexperienced is fatal to the cause of physical therapy, a proven aide to those suffering from various joint diseases.

Recapitulation.

1. After many years of research and clinical study, it as been demonstrated that there are three varieties of arthritis (Painter) (a) the infectious or toxic, acute in type usually. Distributed equal-

ly among males and females, having no choice in the joints involved nor the age of the individual. Generally due to a readily demonstrated focus of infection and characterized by the recognized clinical signs of acute inflammation. As a rule cleared up by removal of the existing focus or foci of infection, general elimination, mild sedatives and physical therapy. (b) The metabolic type, commonly known as hypertrophic arthritis or osteo arthritis. Seldom occurring before the age of 40, when the body metabolism is becoming less active and trauma has been more constant. Common to both sexes, occurring most frequent in the terminal phalangeal joints and knees of women and the spines and hips of men. Characterized by absence of acute inflammatory reaction but stiffness and painful joint or joints. Roentgen-ray findings typical, showing overgrowth of bone along the articular surfaces as spur formation. Relieved by correcting metabolism, clearing up existing foci of infection, and physical therapy with moderate fixation of the part involved. Guaiacol carbonate in large doses over a long period of time is very helpful. (c) The nutritional type, commonly known as atrophic arthritis or arthritis deformans. Most common in women of early adult age (25 to 40). May be due to frequent nervous or psychic trauma, many nervous shocks, frequent child bearing experiences, etc. May also occur in children as Still's disease. Essentially polyarticular and most frequently attacks the interphalangeal joints, hands, wrists, knees and elbows and hip. Usually without typical symptoms of acute inflammation but more thickening of the periarticular structures with pain and, in the advanced cases, ankylosis of the joints due to erosion of cartilage. Roentgen-ray evidence shows bone atrophy throughout and narrowing of joint spaces. Relieved by clearing up all foci of infection, general elimination, local application of physical therapy and "antirheumatic" sedatives. Mechanical correction of visceroptosis and local correction of deformities.

2. In referring to clearing up foci of infection, particular attention is directed to greater care in investigation and especially to intestinal absorption. Renewed interest in colonic lavage and general intestinal elimination is justified.

DIGITALIS.*

T. E. WILLIAMS, M. D.,

SHREVEPORT, LA.

Digitalis belongs to the Scropherlareaceal or Figworth family, a group of bitter poisonous plants indigenous to central and western Europe. It will grow in the northern and western part of the United States. It thrives best in sandy soil without lime. The cultivated plant is about the same strength as the wild plant.

"It was only toward the middle of the last century that any headway was made in the diagnosis and treatment of disorders of the heart. Morgagni and Senac were among the first to study the structure of the heart and its disorders; the irregular and intermittent pulse, asthma, and edema of the legs were hitherto attributed to disorders of the lungs."

Various remedies were used until Wiliam Withering gave to medicine a new remedy, digitalis. As early as 1542, Leonard Fuchsins discovered its use and attributed to it emmenagogic and cleansing properties. It was regarded as vulnerary by Gesner, as a purgative by Lezel, as a specific for epilepsy by Parkinson.

In the middle of the seventeenth century it was admitted to the pharmacopeia of London but soon disappeared. At the opening of the eighteenth century it appeared in the pharmacopeia of Wurtemburg, and in 1721 reappeared in that of London, but so many grave complications were blamed on its use that in 1746 it was banished from all foreign pharmacopeia except the French. It was, however, very seldom used even there.

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William Withering, botanist, chemist and mineralogist, was attracted, in 1773, to the use of digitalis for the treatment of dropsy by the old women in the country. His first observations were reported in 1779 and in 1785, he published a book on the indications and effects of this plant. He found it to be a powerful diuretic, and it had an action on the cardiac contraction which no other drug possessed in the same degree. He advised giving the drug until it acted on the kidneys, stomach, pulse and intestines, and to stop it use at the first appearance of these effects. So it was Withering who by long and methodical observations proved the marvelous merits of digitalis.

Other authors noted that the vigor and force of the pulse, under the effect of digitalis, was augmented in proportion to the absorption of water, and also that digitalis acted as a diuretic only when there was dropsy.

It was not until about 1840 that the value of digitalis in heart conditions was truly recognized.

Debreyne in his work on therapeutics remarks that dropsy is relieved by combining diuretics and purgatives, and frequently prescribed pills containing digitalis. In this way he brought it back into use. He found that digitalis was useful in dropsy only where the dropsy was due to a heart condition.

EXPERIMENTATION AND PROVING OF DIGITALIS

In order to understand more fully the effects of digitalis and just how such effects are brought about, let us review the results * * * noted by Meyer and Gottlieb and of a great many other experimenters.

They use frogs, guinea pigs, cats and mice mostly. By giving lethal doses of digitalis to frogs, the heart would be arrested, the ventricle in systole and the auricle in a state of diastole. The frogs would continue to hop around several minutes after the heart had stopped beating. This is intended to show that in the frog at least it did not affect the nervous system. But the experiments upon mammals show that even in small doses it does produce an inhibitory effect upon the vagus nerve center, the larger doses produce the most profund effect upon the heart muscles and still larger, upon the vomiting center of the brain.

If we observe the exposed heart of a frog after the injection of a full poisonous dose, in a few minutes diastole appears larger and somewhat longer in duration and less frequent. The energy of contraction is increased, the ventricle becomes paler at the center of contraction and empties itself more completely. Later comes the diastolic pause. The still further effect shows the marked irregularity, then the systolic contraction occurs in spots. Not all parts contract and relax at the same time. The blood is forced back and forth in a peristaltic fashion until the ventricle is finally arrested in systolic contraction and empty while the auricle contracts for a time and is arrested in diastole.

That this arrest is not a paralysis and that the heart will beat again is proven by injecting fluid forcibly within the cavity which brings about another contraction. If digitalis is given only enough to arrest the heart in systole, the auricle will again, after a short pause, begin to beat, and this is followed by slight action of the ventricle, and again, later, peristaltic action of the heart and a gradual return to normal beat, the different phases appearing in a reversed order of their onset.

How do we explain this ability of the heart to extricate itself from the power of this mighty drug? In the first place, where is the drug that produces this effect upon the heart muscles and perhaps upon the nerve mechanism of the heart itself? We believe that it has been proven that the drug has united itself with the muscle and nerve tissue of the heart itself. If this is true, how does the heart rid its tissues of the poison? What becomes of this drug that is united with the tissue cells? It has

been found that the heart will free itself even in the animal with kidneys and intestinal tract detached, thus, we think, proving that the heart detoxicates itself either by expulsion from its tissue the elements of the drug or by metabolism destroys these elements in the tissues.

A word as to the vagus center. Rothberger and Winterberg claim that there is a more sensitive state of the vagus center produced by this drug. Again, it may be claimed that the effect upon the vagus center may be brought about by a greater volume of blood sent through this nucleus. However this may be, experiments have proven that a heart perfused with digitalis, after section of the vagus nerve, will show the same increase in length and strength of ventricular systole and the diastolic pause.

Again, it seems that in certain diseased states of mammalia the increased sensitivity of the vagus center seems to exist as a result of the disease (possibly from retained toxins) and probably account for the more profound action of digitalis in some diseased conditions where the nerve center is already sensitized by intoxication.

Why do we say that digitalis may combine with the heart tissues? In consequence of great affinity of heart tissues for digitalis, the glucosids appear to be withdrawn from the media perfused through the heart and stored in the heart tissues. This is proved by the solutions so used losing their digitalis effect after the passing through the heart. Again, if we inject intravenously the drug into the mouse, the poisonous effect of the drug lasts long after the drug has disappeared from the circulatory blood.

Still further proof of the union of the drug with heart tissue is from the fact that, after perfusing a heart with digitalis solution, the effect upon systole lasts long after the digitalis is removed from the solution and again when the poisoning is incomplete, a solution free from the drug may be used and repeatedly washed through the heart, which continues to show its partial poisoning.

Again, it is proven that this same heart is more easily poisoned a second time. Again, the union of digitalis with heart tissue is so firm that no investigator has succeeded in removing any part of it by chemical methods. The ability of the heart to rid itself of the non-lethal dose of digitalis appears to depend upon the power of the body to destroy the said poison by acts of katabolism. We thus can explain the persistence of the effects of digitalis and a heart once digitalized will detoxicate itself at a certain rate and daily additions of the drug must not be greater than the amount thus disposed of by the heart. The digitalis group does not show an equal accumulating quality. Strophanthin is the most evanescent, while digitoxin is more inclined to accumulate. The other glucosids fall in between the extremes. Hatcher found in cats that after three-quarters of a lethal dose of tincture of digitalis that it took 16 days for complete detoxication, with digitoxin 28 days, digitalin six days, and strophanthin one day.

Digitoxin accumulates rapidly and is dangerous. Digitalin is weak and is destroyed to an incalculable extent in the stomach. The same may be said of tincture of strophanthus given by mouth, while strophanthin given by intravenous administration is very effective. Thus with variation of the strength, absorbability, accumulation, etc., of various constituents and preparations, there is a very good reason for giving the leaves which represent the combined action of all glucosides. Dose, .06 gm. to 1 gm., 3 to 4 doses per day, 3 to 4 days for digitalization.

STANDARDIZATION OF STRENGTH

A colorimetric method for the chemical assay of digitalis is here described. The reaction upon which the method is based is extremely sensitive, the 0.01 mg. of digitoxin diluted to a volume of 10 cc. with alkaline picrate solution can be detected; in other words, digitoxin can be detected in

1:1,000,000 dilution. The method is simple, and, with the reagents on hand, can be performed in one hour.

It is possible by chemical means to estimate the amount of digitoxin present, but the activity of the whole drug does not correspond to the amount of digitoxin present and there is no known method of estimating the amount of other glucosides present, hence the necessity for using animals such as frogs, cats or guinea pigs.

There are at present four American methods in use for the physiological testing of the digitalis series, namely: the twelve-hour frog method, proposed by Houghton; the one-hour frog method, proposed by Reed and Vanderkleed; the guinea pig method, and the cat method, proposed by Hatcher and Brody. The cat unit of Hatcher and Brody, according to the American Journal of Pharmacy, is the weight of dry drug in mmg. which in solution is requqired to kill one kg. of cat, injected intravenously. The average total amount of digitalis required for oral administration to man is .15 of one cat unit per pound of body weight.

The varying rapidity with which different preparations of pure glucosides are detoxicated or absorbed by tissues makes this or any other method a little lacking in mathematical exactness. The absorption of the drug when administered by mouth is a proposition of great importance to consider in most cases. In cases with portal congestion or with stomach and intestinal irritation already existing there is deficent absorption. There is a great deal of tissue irritation in all of the digitalis group, not only in the saponins, but in the glucosides, and often create an irritation of the digestive tract varying with different preparations and the length of time remaining in the stomach before absorption takes place.

Holste and others found that the glucosides of chloroform fraction resist the gastric and intestinal juices, while the strophanthin is easily broken up into less active and even inactive components in the stomach. Hence the administration of the latter by mouth developes a very small amount of its activity.

EFFECT UPON THE BLOOD VESSELS

It has been found by use of the plethismograph and earlier by perfusion of different blood vessels that digitalis affects the different vessels of the body in a different manner and that the effect was due to action on the same upon some element in the vessel walls, as its effect was manifested when the spinal cord was destroyed. The plethismograph enables us to estimate the amount of blood passing through various vascular areas.

The application of this instrument shows that vaso-constriction was chiefly in the intestinal vessels and those of the liver while those of skin and muscles and those of the kidneys were dilated.

The coronary vessels are never constricted and are dilated by small doses. These experiments may explain why arteriosclerosis involving the vessels of the heart seem to improve under influence of such doses of digitalis. This experiment has been carried out by Bradford and Phillips, Gottlieb and Magnus, F. Meyer and many others.

This dilatation of kidney vessels may also explain the apparent diuretic effect of digitalis, and while the blood pressure is increased in some parts of the body, the greatest effect is a change in the general distribution of the blood. The dilatation of the kidney vessels appear to be due to the action of digitalis upon the vessel walls as shown by the experiments of Loewi Jonescu Fahrenkamp and others on the denerved kidney and in the perfused organ.

According to Gottlieb and Meyer, the same concentration of digitoxin and strophanthin which, perfused through the kidneys, producing dilatation, caused constriction of the intestinal vessels, while the vessels of the skin and muscles are un-

affected and only constrict with much higher concentration. The constriction of vessels of abdomen forces the blood into the extremities, although they are not directly affected by digitalis.

CONCLUSION

Digitalis enables the ventricle which has been inefficient to carry out more complete contractions. It thereby removes indirectly the secondary congestion of the large vascular areas, where the diseased condition maintained. The pressure and flow become normal. The blood accumulated in the venous areas of the intestines and liver is forced out and over to the artificial side and the blood accumulated in these areas is forced out to the kidneys and into the periphery of the body.

The pathological distribution of blood becomes a normal one. In this way we can explain the removal of congestion and the improvement in distribution of blood in this case in which the insufficiency of contraction is the essential cause of the disease. This is a condition calling for large doses of digitalis. In the arrythmia due to extra systole or auricular fibrillation, a disease where we have to deal with impulse production and impulse conduction, we have a condition showing the effect on the heart of central vagus stimulation and increased peripheral vagus irritation, and these are favorable conditions for small doses of digitalis and the heart readily slows down under influence of small doses. This response is greater in decreased than in normally rapid hearts. Just as the increased contractability in case of inefficiency is of great importance, so the vagus action is the chief factor in disturbances of rythm.

PREPARATIONS

Besides the dried leaf, tincture of digitalis and the infusion of digitalis, we have two most important glucosides of digitalis, digitoxin and digitalin. We also have several proprietory remedies, the most important of which are digifolin and digitan and digitol. Digifolin is supposed to contain all cardiac principles without the saponins of digitalis. It is in the form of tablets and ampules.

The same may be said of digitan. Digitol is a standardized tincture with the fatty matter removed, by treating with benzin. Digifolin is especially suitable for hypodermic use on account of being less irritable to subcutaneous tissues. Ouabain and strophanthin are the best forms of the drug to be used intravenously.

The physiological action of digitalis is conveniently considered in three stages. The first or therapeutic stage is characterized by stimulation of the vagus nerve center in the medulla, which results in slowing the heart beat. This slowing is caused by lengthening the diastolic pause. It also increases the contraction of the muscles of the ventricular wall. The net results are a greater output of blood in a given time.

The second stage is characterized by symptoms of poisoning due to excessive action on the inhibitory nerve center. The heart beat is strong, but so slow that the amount of blood sent through the heart is greatly decreased.

In the third stage the irritability of the heart muscles is so great that the ventricular beat is greatly increased, and extra systoles are apt to occur and later, fibrilation. The second and third stages are undesirable and represent the poisonous effect of the drug.

Digitalis may in large doses inhibit the auriculo-ventricular bundle, producing a ventricular beat slower than the auricular. This may go on to a coupled beat and later to a complete heart block. Digitalis has been used in the treatment of heart disease for nearly 150 years, but its action was poorly understood until the sphygmacardiograph and electrocardiograph by MacKenzie and Emthoven respectively in recent years.

Dr. Cary Eggleston in 1915 brought out the idea that:

(1) The amount of digitalis required in any given case might be calculated in advance.

(2) By using much larger doses than customary the desired effect could be obtained quickly by mouth administration, that whether given in small doses or large, a definite amount of digitalis was necessary to digitalize any heart. He showed that, instead of digitalizing by small doses in several days, it could be accomplished by large doses in a few hours and with safety. Eggleston's method is as follows: Practically 2¼ minims of tincture of digitalis per pound of body weight, 335 minims for 150 lbs. This is about 5½ drams.

The method of administering digitalis when the patient had not received digitalis within the preceeding 10 days is: (a) If the case is urgent, give 1/3 to 1/2 of the calculated amount at the first dose, 1/5 to 1/4 six hours later, 1/8 to 1/6 after second six hours. If more is required, give 1/10 of the total dose every six hours until digitalization is accomplished.

If the case is not urgent, give 1/4 of the calculated total at each of the first two doses, six hours apart. Then 1/10 to 1/8 of the total every six hours. If the patient has been taking digitalis within the past ten days, doses must be much smaller. The reasons for giving calculated amounts in small doses: (1) A lack of uniformity of the preparation, (2) while some patients tolerate digitalis well, a few patients seem to be susceptible to digitalis poison. We are of the opinion that it is never quite safe to give these doses of digitalis unless the patient is under observation. To send the patient home for indefinite stay to dose himself would possibly be inviting trouble.

In auricular fibrilation it may be given in moderately large doses for heart failure, threatened heart failure and in acute dilatation it is best used in large doses. In acute dilatation of pneumonia it has come into almost general use and preferably as a prophylactic measure. It is perhaps the most important drug in the treatment of pneumonia, and I am of the opinion that we should give our patients good size doses early in the disease to avoid the failure which may come later. A patient well digitalized early in the disease will remain digitalized throughout the short course of pneumonia.

Digitalis in hyperthyroidism is useful in the irregular rhythm of fibrillation but of very little use of the rhythm is not disturbed. The regular rapid heart seems to be influenced very little by digitalis.

In myocarditis and coronary sclerosis, digitalis may be given in small doses. In acute pericarditis it has little, if any, value.

WHEN TO STOP DIGITALIS

1. Nausea and vomiting when not due to other than digitalis causes.

2. A cardiac rate below 70 or a sudden slowing of the rate (which means heart block).

3. The appearance of extra systole or completed rhythm.

4. The change of a regular rhythm to an irregular rhythm or intermittent rhythm.

SUMMARY

I. It can be shown by experimentation that small doses affect the vagus center and produce slowing of the heart beat and that larger doses affect the vomiting center; that it acts upon the blood vessel walls and walls of the heart; that it unites with muscle and nerve tissues and that the heart detoxicates itself by expulsion of the drug or by katobolism; that digitalis produces a dilatation or constriction upon the blood vessels of different parts of the body.

II. The cat unit of Hatcher and Brody and the frog unit are most commonly used in standardized digitalis.

III. Best preparation for mouth administration are the tincture and dried leaf, for intravenous, strophanthin and ouabain.

IV. The method of Eggleston may be used for rapid digitalization by mouth.

V. Large doses may be used in pneumonia, in heart failure or threatened heart failure; smaller doses in fibrillation and thyroid intoxication and still smaller doses in coronary sclerosis and myocarditis.

VI. Digitalis probably has very little effect in surgical conditions or other conditions with rapid heart where the heart is not affected.

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DISCUSSION.

Dr. Chaille Jamison (New Orleans): The question of digitalis is a delicate one, because every doctor has his own opinion as to how it is to be used, and it is always a subject that I approach with considerable diffidence. However, Dr. Williams has discussed the pharmacology so beautifully that I would not attempt to say anything about the pharmacology of the drug, but would like to confine my remarks to its clinical use.

My own ideas have crystallized in the last two years, after a considerable number of years of observation. First of all, the outstanding value of digitalis, certainly where its most brilliant results are obtained is the myocardial lesion, particularly with congested heart failure, that is the outstanding place in which we see the most beautiful and brilliant results.

Secondly, I think we can fairly safely state that in congestive heart failure which results from rheumatic diseases, it is always fraught with good results, one can expect good results with confidence in congestive heart failure due to any of the rheumatic lesions.

It has always struck me that in hypertensive heart disease with congestive failure that the results are nearly as good as in rheumatic heart disease, and one must be careful of that pitfall in the use of digitalis of increasing blood pressure, give the digitalis whether the blood pressure is high or not. The blood pressure rises more freely after congestive heart failure than it falls, and it is not an index for the use of digitalis. Every physician has seen the pressure fall under such dosage as recommended by Dr. Eggleston.

Now, I am coming to a point of my discussion which I want you to understand is a personal view, I am not in a position at the present time, thought I hope to be in the next few years, to prove my point, it is more an impression at the present time than it is capable of proof, and that is of the effect of digitalis on syphilitic heart disease. The older cliniticians have taught us, and I think they were correct, that digitalis was often, at least if not actually harmful, useless in regurgitation.

I believe it has no value, I believe in the other forms of syphilitic heart diseases that its value is practically nil, so much so that in my service at the hospital where we see a great preponderance of those cases, we no longer use it. We use it in rheumatic diseases with congestive heart failure, and in hyper-tension diseases with congestive heart failure, not otherwise. The subject is too big to even begin to discuss in a few minutes and I am going to close with those remarks.

Dr. Kerlin (Shreveport): I was glad to hear Dr. Jamison, particularly, stress the use of digitalis in the fibrillators. I would like to mention, particularly, its use in the chronic fibrillators. I have had occassion in the past five or six years to observe three cases in which prior to their coming under my observation they had been given digitalis during the acute attack, and upon improving they would cease taking it, and they would usually have a recurrence. I insisted that instead of ceasing the administration of digitalis, that they continue it, and along the lines that Eggleston has suggested. I have had them take twenty-five minimums daily over a period of three to five years. In other words, they are never without their daily dose of digitalis, at least once or twice a day; it makes no difference how they take it, whether it is one dose or two doses; and, to my surprise, these cases have never had a return of the fibrillation except in a minor degree. I have kept in contact with them and have questioned them closely regarding a recurrence. Do not misunderstand me to say that I believe it would do that in all chronic fibrillators. It may be a coincidence, but that has been my observation in a few cases.

Dr. A. G. Herold (Shreveport): Digitalis is one of our most valuable drugs, if properly used; at the same time it is one of our most abused drugs. I am sorry we cannot hear all of Dr. William's paper, because there are some points on the therapeutics that I wanted to get. I thoroughly agree with everything Dr. Jamison has said, but I was a little disappointed when he said there was one point he did not want to be very dogmatic on, I wanted him to express an opinion.

I was in hopes he was going to give his views on the use of digitalis in pneumonia. That is a hobby of mine. I have written two papers, one on pneumonia, one on the use of digitalis in pneumonia, and there have been a number of controversies on the subject. I am still of the opinion that in pneumonia it is a proper drug, and should be used before the heart begins to dilate. I have seen the dilated heart where the patients go out by cardiac failure, and I believe if you slow that heart, give that heart muscle a chance to properly nourish through prolonged disastole, at the beginning, we could save many deaths by heart route at least.

I recall a controversy I had at one of the New Orleans meetings of this society on that very subject. It is not an infallable rule, but the rule that I try to go by is that, if the pulse rate gets higher than the systolic blood pressure, I begin my digitalis immediately and give it in sufficient dosage to slow the heart down. I thank you.

Dr. J. A. Danna (New Orleans): If there is any condition in which a drug that both strengthens and slows the heart ought to do good, then the acute thyroid toxicosis, or an acute thyroid flare-up is the ideal thing for the average, that is, it seems so to me. For a long time I used digitalis in these cases, but never seemed to get any more result from it than from any of the other medications.

For several years, at least three years, Plummer, of the Mayo Clinic, preached that digitalis is a harmful drug in that type of case, and he says that cases in which they used digitalis are the ones which die. I would like to have Dr. Williams, if possible, express his opinion on the subject, and enlighten us a little bit.

Of course, this statement of Plummer, and this conclusion which Plummer has come to, has been coincident with the use of iodine in the treatment of these cases, both prophlatic, and after they flare up, so that there may be a question as to whether Plummer is right or not. I believe Plummer is the only one who feels that way. In the other big clinics they are still using digitalis.

Dr. Oscar Bethea (New Orleans): Allow me to say, in the first place, that I believe that it would be an excellent idea if we had at least one paper on some important drug at each of our meetings.

Dr. Williams has met this requirement exceedingly well by his excellent presentation on the subject to digitalis.

This is such an important drug and is so extensively employed that we naturally find a divergence of opinion among members of the medical profession. Almost any reasonable remark would be safe in a small crowd such as we have in this session today, but in a large group, digitalis is an excellent subject with which to start a fight. It has at times reminded me of the old story of Saul of Tarsus when brought before the Sanhedrin. Wishing to divert attention from himself, he brought up the question of the Resurrection of the dead and a Roman legion had to be called out to quell the riot.

This lack of uniformity of opinion with regard to digitalis obtains particularly with regard to goiter, the condition that has just been mentioned, where we find men like Plummer and Sajous on exactly opposite sides.

Also with regard to its use in pneumonia, as suggested by Dr. Herold. There are many great writers who agree with Dr. Herold and his contention, and a host of others are emphatically opposed to such employment of the drug.

I do not feel that I can add anything worth while to the excellent presentation of Dr. Williams.

Dr. J. George Dempsey (New Orleans): Digitalis, its use, properties, indications, etc., would require many volumes for complete consideration. I wish merely to encourage its use in different forms and to add a word of caution lest too much dependence be placed in the many synthetic preparations on the market at the present time.

In instances when the modern treatment has been found to be of no benefit, it is well to bear in mind the old reliable decoctions, extracts and infusions. In my own experience the last named has been effective frequently, when the others have failed.

Dr. J. E. Williams (closing): In reference to the effect on the heart in thyroid intoxication, I am of the opinion that as long as the thyroid intoxication has not affected the musculature of the heart, that it probably does no good, but when the heart muscle begins to fail, I believe digitalis is a valuable drug even in thyroid intoxication.

In reference to digitalis in the treatment of pneumonia, I believe the proper use consists in the early administration in material doses. Digitalis given our patients early in the disease will carry them through the crisis when the heart needs the support. The effects of digitalis will last several days and will carry them through the short period of the pneumonia. I certainly appreciate the percentage of the crowd commenting on our paper.

OBSCURE SYMPTOMS PRESENTED BY ANOMALOUS KIDNEYS.*

REPORT OF THREE CASES

BARRON JOHNS, M. D.,

SHREVEPORT, LA.

With the advent of modern methods of urological diagnosis, the anomalous kidney has become almost a matter of everyday occurrence, at least in the clinics where a large number of cases are seen for routine diagnostic procedure and where the uretero-pyelogram is employed frequently as a part of the investigation of urinary organs. In the study of malformed kidneys there is still quite a deal of discussion as to the line separating the normal from the abnormal. Ureteral duplication with double pelvis and kidney is by far the most common of renal anomalies, in fact it occurs more than all the other forms of anomalous kidneys combined. About 3 per cent of all individuals have a double or bifed ureter. Autopsy findings of some investigators indicate 4 and 5 per cent of duplicate ureters and pelves. A review of the literature brings out several interesting facts characteristic of double kidneys and ureters. The anomaly is most common in females in the proportion of two to one. It occurs unilateral in 85 per cent of cases and bilateral in 15 per cent. When the anomaly is unilateral it occurs with about equal frequency on the right and left sides. Anomalous kidneys are more susceptible to infection and other pathologic change than normal kidneys, although the majority of double kidneys we find in the course of routine cystoscopic examination or at autopsy do not give rise to symptoms. The phenol-sulphon-phthalein functional test of the two parts of the double kidney usually equals that of one normal kidney. Another interesting fact is that bifed or double ureters are never seen with a single renal pelvis, a division of the ureter or duplication of the ureter without exception means a double pelvis. If there is complete doubling of the ureter, the one draining the superior pelvis empties at a lower point in the bladder than the ureter draining the lower pelvis.

The embryology of double kidneys and ureters is still a subject calling for much discussion and theory. The normal ureter and renal pelvis with calyces and collecting tubules develop from the ureteral bud, an outgrowth from the dorsal surface of the Wolffian duct. Premature division of the ureteral bud would evidently give origin to the bifed or branched ureter. There is a difference of opinion as to the origin of complete doubling of the ureter, that is, whether such ureters arise from separate outbuddings from the Wolffian duct, or whether they arise as sprouts from a single parent bud.

A second group of anomalous kidneys not so frequently met with as the malformed kidney, is the type classed as abnormal because of its position. These ectopic or commonly spoken of as pelvic kidneys, were considered rare and patients possessing them were looked upon more or less as freaks until modern urological diagnostic technique demonstrated that a comparatively large number of individuals had congenital malposition of kidneys, that were perfectly normal in function. The frequency of ectopic kidneys as shown by statistics is about one in five hundred. Naumann in 10,177 autopsies found twenty cases of congenital misplacement of the kidney in the true pelvis, three of these cases being bilateral. It must be remembered that renal dystopia or the ectopic group of kidneys is a congenital condition and does not include the so-called floating type or those displacements arising as a part of a general visceroptosis, from tumor, hydronephrosis or faulty attachment. This acquired displaced kidneys is characterized by a tortuous elongated ureter giving evidence of extrinsic causes of displacement.

The congenital misplaced or ectopic kidney has definite characteristics, they are

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commonly found in the true pelvis, the ureters are short but enter the bladder normally. The peri-renal fat and renal fascia are absent and the kidney is firmly fixed to surrounding structures. As a rule the lower the kidney the more firmly it is fixed. It is almost always smaller than normal, and the renal pelvis is directed anteriorly as in the embryonic condition before rotation occurs. The blood supply is always abnormal, the blood vessels being multiple arising from the aorta or common iliacs. In a large number of cases there are associated anomalies of other organs, particularly so the genitals. In males there may be absence of ejaculatory ducts, seminal vesicles or vas deferens, and testicles may be atrophic or undescended. In the females the uterus and vagina may be absent or undeveloped. Similar to double kidneys, the ectopic kidney seems to be more common in females, and more susceptible to disease than those in normal position. Tuberculosis, stones and hydronephrosis are the most frequent types of pathology seen.

Embryologically, the cause of ectopic kidneys is not definitely understood. We know that the ureteral bud springs from the posterior surface of the Wolffian duct, grows dorsally and upward to meet a cap of mesoblastic tissue to form the kidney, the subsequent development, rotation and ascent to its normal position in the lumbar region being completed about the end of the second month. Supposedly, any factor serving to retard or deflect the ureteral bud is a cause of congenital misplaced kidneys.

Clinically, the malformed and malposed kidneys have come to occupy a definite place in urological diagnosis. The larger percentage of these renal anomalies produce no symptoms, although we know they are predisposed to pathology. As a rule, disease of these anomalous kidneys is manifested by the usual signs and symptoms characteristic of renal disease. I wish to present a brief review of three cases of diseased anomalous kidneys in which the symptoms and physicals signs were obscure as well as misleading.

Case No. S12930. A white woman of thirty-five years, weight 190 pounds, was admitted to the clinic May 1, 1926. She complained of periodic attacks of nausea, indigestion, pain in upper right abdomen and back, fleeting pains in right side of neck and occasional attacks of frequent painful urination. The family history indicated nothing of importance, and the past history was of no particular interest except for the usual childhood diseases. She had had three normal pregnancies and one miscarriage at the third month. Her present condition began three years previous with indigestion characterized by nausea and fullness in the upper abdomen, which was relieved by belching. She also had occasional colicy pains in the right lumbar region extending upward toward her shoulder. These symptoms became more severe, especially the nausea. She would frequently be awakened at night by a feeling of pressure in her stomach, would vomit and go back to sleep. For the past year before admission, the nausea had been constant irrespective of meals. The pain in the upper right abdomen began six or eight months before admission, was of a dull aching type, but only on two occasions was it necessary to take something for relief. For several months she had a feeling of soreness in the right side of her neck with frequent fleeting pains. This soreness would be exaggerated by beads, furs or any article of clothing causing pressure. The only symptoms referable to the urinary tract were occasional attacks of frequent painful urination lasting a few hours.

On physical examination the positive findings were: moderate tenderness and muscle rigidity in the upper abdomen, an umbilical hernia, the fascial ring of which admitted three fingers, reduced itself with patient in prone position and filled to about the size of an orange when sitting or standing (this herna dated back to her first pregnancy 14 years previous); a second degree perineal laceration with well developed rectocele and cystocele. The catheterized specimen of urine was negative. A routine blood examination indicated nothing of interest. Roentgenograms of the gastro-intestinal tract gave nothing of importance. A Graham-Cole study of the gallbladder showed a chronic cholecystitis with probable stones.

Operation May 14. A thickened adherent gallbladder containing thirty-six small, soft stones were removed together with a freely movable appendix filled with fecal concretions. The hernia was repaired with the closure. The post-operative convalescence was without incident.

In February, 1927, this patient was again admitted to the clinic. She stated that the only benefit obtained from her operation was partial relief of indigestion. Nausea was constant and

vomiting more frequent. Pain was still present around the right costal margin and the pain in the right side of neck was worse. She still complained of occasional attacks of frequent urination. Catheterized specimen at this time showed three plus pus with a large number of bacilli coli. Cystoscopic examination: Bladder negative, other than a well developed bas-fond. The left ureter admitted a No. 5 catheter with ease. The right ureteral opening was constricted and retracted. A No. 5 catheter was passed only after the orifire had been dilated with a bougie. An intermittent flow of clear urine was obtained from both kidneys. The catheter was then withdrawn from the left ureter and inserted alongside the right to further dilate the orifice. It was noticed there was an immediate rapid flow of dark, cloudy urine through this catheter. Pyelogram showed a double kidney on the right, with two ureters emptying into the bladder through a common orifice. Urine from the upper pelvis was loaded with pus cells and bacilli coli. From the lower pelvis was negative. It was interesting to note, every symptom of the patient disappeared after the second renal lavage.

Second case, No. S16919. In this patient the anomalous kidney findings were almost exactly the same as the case just described and will be outlined very briefly.

A young married woman twenty-five years of age, was admitted to the clinic November 23, 1926, complaining of indefinite pains in the arms, shoulders and upper part of the back, daily headaches, and fever varying from 99.5 to 100 every day for several months. The onset of her symptoms began five years previous, following a six weeks illness, diagnosed typhoid. Two years later her pains were thought to be focal in origin; tonsils and five teeth removed. She was placed on a non-toxic diet and given the rest cure for three months. There was no relief from any of her symptoms, although she gained twelve pounds in weight. A year later she had a miscarriage at the third month. Within a short time she became pregnant again and had a premature labor at the seventh month. At no time during the period of five years was there any urinary symptoms, although she stated that pus had been found in her urine on one occasion.

Physical examination of this patient was practically negative including roentgen-ray study of the chest and gastro-intestinal tract. Blood examination gave nothing of interest. Examination of catherterized urine showed an average of four pus and two red blood cells per high power field.

Cystoscopic examination November 28 showed the bladder negative other than a marked prominence of the inter-ureteric ridge. While passing a catheter into the right ureter, the ridge pulled over disclosing a second orifice on the right side about 1 cm. below the first, which also admitted a catheter without obstruction. On the left side there was a normal orifice and a dimpling behind the ureteric ridge corresponding to the anomalous opening on the right. Pyelogram showed a double kidney on the right side and analysis of the specimens indicated a bacilli coli pyelitis of the superior pelvis. All of the patient's symptoms cleared up after treatment of this condition.

The third case was one of congenitally misplaced or ectopic kidney.

No. S16295. A married woman thirty-eight years of age, weight 160 pounds, entered the clinic September 6, 1926. The principal complaint was painful defecation. The desire for bowel movement was always preceded by cramping pains in the lower abdomen and back, in the region of sacrum and coccyx, the pains would rapidly become more severe reaching their climax with evacuation, followed by complete relief. Additional complaints were dysmenorrhea, menorrhagia and painful coitus.

The family history was of no interest. The past history and the history of the present condition were the same since the present complaints began when she was 13 years of age with the advent of the menstrual function. She had had seven miscarriages, all between the second and sixth month. None of her pregnancies went beyond the sixth month. Menstruation had always been painful and profuse. During the past ten years the duration has gradually increased until at the present time she is free from menstrual flow about eight days in each month. The patient states she can't remember ever having a bowel movement not preceded and accompanied by pain. She has learned the disastrous results of constipation, since such a condition for her means hypodermics of morphine and enemas. Consequently she has fallen into the habit of taking large quantities of mineral oil and laxatives so as to have two or three soft stools each day. Intercourse has always been painful, producing something like the same type of pain as that accompanying defecation. There is no history of any urinary disturbance.

The positive findings on physical examination were briefly as follows: A hard, rounded, uniform tumor apparently blending with the post surface of the uterus, filling the cul de sac, the mass is fixed and about the size of a three months pregnancy. Vaginal examination produces the same type of pain as that accompanying defecation. Rectal examination further determines the pelvic tumor, otherwise negative.

Laboratory findings on blood and catheterized urine negative. Admitted for operation Septem-

ber 9 (Sub-total hysterectomy). The rather firmly fixed retro-peritoneal sub serous fibroid made the operative procedure somewhat tedious. With reflection of the peritoneum and removal of the tumor, an ectopic kidney was exposed lying in the left side of the sacral hollow at the level of the second sacral segment, firmly fixed to the rectum and surrounding structures; its ureter short and tortuous and deriving its blood supply by three branches from the common iliac artery. Due to the unknown function of the opposite kidney and the procedure to which the patient had already been subjected, the misplaced organ was not removed.

The interesting feature of this case is the follow-up record: Six months after the operation defecation was still preceded and accompanied by pain, and coitus was still painful. A year later her condition was unchanged.

In October, 1927, the ectopic kidney was removed, there has been complete relief of all her symptoms.

In conclusion, the brief review of these cases is presented for the purpose of calling your attention to the fact that anomalous kidneys when diseased are prone to manifest their presence by symptoms and signs not referable to the urinary tract. It is only by better co-operation between internist, urologist and general practitioner, with more general recourse to complete urological examination in obscure cases, that these patients can be prevented from being subjected to comparatively useless medical and surgical procedures.

TULARAEMIA IN SHEEP IN NATURE.—A report recently made public by the United States Public Health Service points out the proved occurrence of tularemia in sheep in nature. This opens the question of the possibility of human infection from the handling of infected carcasses. Infection is known to be definitely possible through the primary contamination of the hands with the tissue of crushed infected ticks held in the wool or with tick excrement which is commonly present in large masses. The fingers might also become contaminated by contract with the decayed tissue which sometimes develops at the points where infected ticks have been attached. The chance that infected meat might reach the market and be a source of danger to persons in slaughter-houses and packing houses and to the consuming public seems less likely, but can not be altogether dismissed, especially if animals are slaughtered for immediate local consumption.

TUBERCULOSIS.*

T. D. BORDEAUX, M. D.,

MERIDIAN, MISS.

Tuberculosis, especially pulmonary tuberculosis, remains one of the commoner diseases with which we have to contend. It can and does attack practically all organs of the body. From a pathological standpoint it is one of the most interesting diseases; from a public health standpoint it is one of the most important diseases. The responsibility of its control rests largely on the medical profession, especially the general practitioner.

The average doctor seems but casually interested in tuberculosis, and for some reason is reluctant to make a diagnosis of tuberculosis until the disease has made such progress that the patient's neighbors have already suspected or actually arrived at a diagnosis. And when the diagnosis is made many doctors are ready to throw up their hands in despair, and say to the family, "See if you can get him in at Magee," or, if particularly well off, "Send him out West."

Tuberculosis is curable in most forms in the early stages. It is the duty of the general practitioner to be able to recognize, or at least suspect clinical tuberculosis from the signs and symptoms, without the aid of laboratory or roentgen-ray, however useful they maybe in confirming or disproving a suspected case.

To recognize tuberculosis in its early stages, it is necessary to keep tuberculosis in mind, and to look for it; and to aid in the diagnosis of pulmonary tuberculosis there are certain signs and symptoms that point almost unmistakably to this disease. To begin with, any trouble found at the apices of the lungs is to be considered tuberculosis until proved otherwise. Expectoration of blood, as much as a teaspoonful repeatedly, almost surely means tuber-

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

culosis; persistent subcrepitant rales in the apices after exhalation and cough usually means tuberculosis. Chronic pleurisy with effusion is almost always tuberculous. An unexplained loss of weight, accompanied or not by an afternoon rise of tempearture, chronic indigestion, neurasthenia, all should suggest tuberculosis, and there are many other suggestive symptoms if one will keep tuberculosis in mind, and be on the lookout for it at all times.

DISCUSSION.

Dr. W. H. Anderson (Booneville): The subject of tuberculosis has been so thoroughly covered today by Dr. Boswell before noon, and Dr. Bordeaux just now that there is not anything to add except to emphasize the points that they have brought out. I think the most important thing brought out by this is the fact that a responsible does rest upon the general practitioner just as it rests on the general practitioner to solve all of the real problems we have. And if we keep it in mind always that we have to consider tuberculosis, then we will go far towards solving the problem. After all tuberculosis is largely a problem in economics as I see it or at least that enters into it. As far as I can find after some little investigation—it might not be true, but as far as I can find from inquiring locally of people in the negro race, tuberculosis was hardly known before the Civil War. When the negro was well fed and well housed and put to bed on time he did not have tuberculosis. This morning Dr. Boswell told us that 1450 of the 1800 deaths in Mississippi last year were among the colored race, and that gives us something to thing about there. We won't go very far along with the problem when we send one person to the sanitorium and we have a colored woman in the back yard—a cook—that gives it to three other persons while this man is at the sanitorium, and the record will show that each person gives it to three other people on an average.

Then another thing that will give us a little lead to keep our minds upon, is a book recently written by Draper, I think it is of New York, going back and making a physical study of the human organism, a study which was started 150 or 200 years ago, and then when we began to get a little further along when the germ theory got in the air, before we knew much about it especially after we began to look at the micro-organisms, we forgot all about the human organism, and we have been chasing these germs for 100 years and have forgotten the human organism. He has divided the human body into four panels, I believe he calls them, the anatomical, the physiological, the pathological and psychological, and he says when he makes this analysis he can tell mighty well what a man is going to die with. I believe it is overdrawn, but there is a lot in it, and if you will get in your mind a picture of the person who is susceptible to tuberculosis and examine for tuberculosis all of them, it will be best.

There is one other point I have in mind—a little experience I had that I don't think was so good, and I just want to give a little warning about examining the chest before you operate especially for the removal of tonsils. I had two patients that I felt should be operated on; they kept having sore throat, tonsilitis and finally I operated. I didn't think one of them did so well after the operation, not immediately afterwards but several months later. I thought the patient went down faster than he should. The other case had a goiter and she had tonsillitis almost continuously, and I finally decided to remove her tonsils and the goiter disappeared, but this case didn't do so well either, and in my opinion you should be very careful in that type of case and go over the lungs before you do, or recommend an operation for the removal of the tonsils. I certainly enjoyed this paper.

Dr. Love: We have with us Dr. Wyman of Alabama, a member of the State Board of Health, who has been interested in tuberculosis for several years. We would like to hear from him.

Dr. Wyman (Alabama): I am very glad indeed to meet with the Doctors of Mississippi. This happens to be my first visit to your excellent association. I have a very warm spot in my heart for Mississippi. You are our close associates, you are our neighbors, and I feel very kindly to the Mississippi people because my mother was born in Lowndes County, Miss. I have often wished to attend your meetings. I note that you are doing wonderfully progressive work in public health in Mississippi. I heard the discussion this morning. Your work will almost equal that of Alabama. Now, gentlemen, you know Alabama is in the lead in public health work. You will excuse me for saying that, but I presume you all know it. I heard our health officer say not long ago that in two years we would have an all-the-time health officer in every county in Alabama. I said, "we knew you were a great health officer, we know you are a great executive, but I am satisfied now you are a good politician." He got the money, and we are going to have an all-the-time health officer in every county in the state. Gentlemen, this is an achievement of which we are very proud. We already have 60 per cent of the people of Alabama under public health service.

I did not get up here, however, to laud Alabama, but just to say a word with reference to tuberculosis. Dr. Bordeaux has given you all the essential points in an early diagnosis of tuberculosis. I have for many years been interested in this subject, and I find that the great trouble is that the average practitioner does not make an early diagnosis. They are afraid to tell the people they have tuberculosis. Now we don't hesitate to tell them so the disease can be resisted. There are one or two points in a differential diagnosis that I would like to mention. There are many people who consult a doctor with the idea that they have some chronic disease, many of them imagine that they have tuberculosis. Now, in my work I find a lot of them come labelled with neurosis; that doesn't mean much. I remember when I was in New York attending a clinic the doctor in charge would bring the students around, after giving them the history of the cases, and ask them what their diagnosis was. One of the fellows would say neurasthenia. This doctor said, "that is no diagnosis—that doesn't mean anything." Now as a matter of fact there are many cases diagnosed as neurasthenia, who really have tuberculosis. We find that as Dr. Boswell said, the early signs are very important. One thing I want to call your attention to is a rapid pulse. You get a rapid pulse in other diseases besides tuberculosis. You have to differentiate in the absence of physical signs between a hyper-thyroid. You also have to differentiate from diseases of the circulatory system, which they call in the army neuro-circulatory-asthenia. That diagnosis was made often in the army, and if you look in the Veteran's Bureau you will find many cases diagnosed thus, which means a neurotic condition, weakness of the heart muscles with a rapid pulse. I heard Dr. Minor say he had a number of cases who had been sent to Asheville in which the diagnosis of tuberculosis was made when he found that they were psycho-neurotics, so it is important to eliminate that.

I think that if we would be very careful in our examination of our patients, go over the lungs very thoroughly as Dr. Bordeaux has pointed out, and find the physical signs which he has mentioned—there may not be any dullness or percussion, you can except the usual rales—you can arrive at a very definite diagnosis.

Now, just a word in reference to the roentgen-ray and to the sputum. Of course you all know that in early tuberculosis you get no bacilli in the sputum, so absence of bacilli is not evidence that the patient has not tuberculosis. The roentgen-ray findings, as we all know, are very uncertain; there are many lungs that have spots in them. I never make a diagnosis unless there is some little temperature and the clinical signs are evident.

Dr. T. D. Bordeaux (closing): I have nothing further to say. I wish to thank you gentlemen.

REVIEWS

WOUNDS.*

(Part II)

ALTON OCHSNER, M. D.†

NEW ORLEANS.

INFECTED WOUNDS

The processes occurring in infected wounds are practically the same as those which occur in the sterile, non-infected wound, the difference being largely that of degree. In order to better understand the biologic processes occurring in such wounds, these points might be recapitulated. Sir Almroth Wright[52] divides the organisms which are found in infected wounds into two types, the so-called serophytes and the sero-saprophytes. He believes that the serophytes can grow and multiply in unaltered blood fluid, whereas the sero-saprophytes can exist and multiply only in altered blood fluid, which he terms corrupted body fluid. The serophytes are those organisms which are found in relatively clean and open wounds. Of all the organisms found in all types of wounds, only the serophytic organisms, especially those of the streptococcic group, are capable of invading the normal blood stream. Only when the blood stream itself becomes altered or corrupted can the sero-saphrophytic organisms gain entrance to it. Only serophytes can grow in the comparatively clean wound because of the anti-tryptic power of the blood. It is known that the leukocytes, when destroyed, furnish a tryptic ferment. This tryptic ferment is neu-

*Presented before the Surgical Faculty, Tulane University, April 24, 1928.

†From the Department of Surgery, School of Medicine, Tulane University.

tralized by the anti-tryptic ferments of the blood. When, however, more tryptic ferment is formed, by the destruction of a large number of leukocytes, and not enough anti-tryptic enzyme is present to neutralize the ferment, saprophytes may grow luxuriantly. The tryptic ferment which is produced by the destruction of the leukocytes is a desirable factor when sloughs and necrotic material are present, as this tryptic ferment serves to digest the necrotic material. According to Wright[52] the physiological properties of the leukocytes are: (1) a very active spontaneous motility; (2) power to immigrate from the capillaries; (3) stereotropism; (4) chemotactic attraction and repulsion; (5) power to ingest and destroy, by intracellular digestion, microbes that have been prepared for phagocytosis and digestion by the tryptic action of the cell; (6) power to excrete, under appropriate stimuli, bactericidal substances which kill microbes of various kinds exposed to their chemical influence; and (7) the liberation of trypsin.

Within an hour after the beginning of a wound infection capillaries become dilated.[53, 54] The rate of the flow of blood increases. The corpuscles occupy the axis of the vessel, whereas the peripheral portion is occupied by plasma. Shortly after this acceleration in the blood flow there occurs a slowing of the blood stream, and at the same time the leukocytes of the blood become adherent to the capillary wall. The differentiation between the axial and the peripheral streams cannot be made out. The leukocytes become firmly attached to the lining of the vessel, following which an emigration of the leukocytes through the vessel wall occurs. The leukocytes gain entrance to the lymph spaces outside the capillaries, and within the course of 5 or 6 hours all the capillaries and small veins in the neighborhood of the injury show a collection of leukocytes along their outer surfaces. The organisms are actually ingested by the leukocytes. In about 24 hours' time the connective tissue fibrils are widely separated by the aggregation of the leukocytes. Within 48 hours the inflammatory process begins to become walled off. There is destruction of the living cells in the region of the greatest infection. Surrounding this a wall of leukocytes separates the infected area from the rest of the uninvolved tissue. Wright[52] believes that the polymorphonuclear leukocyte differs from the mononuclear leukocyte in the following manner: Due to the division of the nuclei of the polymorphonuclear leukocyte, these cells make their way through the capillary wall more readily, and they can move faster than the mononuclear cells. In fluid the polymorphonuclear cells have no fixed point of attachment and are unable to attack organisms. If, however, the wound is free from fluid, the leukocytes, by their active and amoeboid movement, are able to directly attack and destroy organisms.

In granulating wounds leukocytes and serum are found on the surface of the wound. Flemming[55] has shown that flushing a granulating wound with physiological salt solution removes all the leukocytes and thereby removes the protective factor. After a period of time, however, fresh leukocytes appear again which have a bactericidal effect. If pus is allowed to collect in the wound the bactericidal power properties again become diminished.

THE BACTERIOLOGY OF GRANULATING WOUNDS

Considerable work has been done, especially among the Continental surgeons, on the bacteriology of granulating wounds. Melchoir and Lubinski[56] examined a series of 69 wounds, all of which were of the clean, granulating type. Organisms were found in only 59 cases, whereas in 10 wounds there was no evidence of any organisms obtained bacteriologically. In only five instances were a large number of organisms found, whereas in 16 instances there were only a few or an occasional organism. The diphtheria bacilli were present in 6 per cent of the cases. In 25 cases there was a mixed infection, and 34 times the organism was found in pure culture. The staphylococcus aureus hemoly-

ticus and staphylococcus albus non-hemolyticus were by far the most frequent offenders. Streptococci alone were found only one time and only 9 times together with other organisms. Grossman[57] examined 400 wounds bacteriologically. A large number of wounds were examined repeatedly, often as many as six or eight times. Of this number 200 were "clean wounds" and showed healthy granulations. Grossman believes that the finding of no organisms in ten out of 69 wounds by Melchoir and Lubinski, is of little significance, because one is apt to fail to find organisms if repeated examination or smears from different parts of the same wound are not made. The staphylococcus aureus was found shortly before healing in every wound, and was frequently found in fresh scars by Grossman. In 115 cases the staphylococcus aureus was found in pure culture. Organisms of the diphtheria group were present in 65 instances. Streptococci were seldom found, and in only two cases were they found in pure culture.

Blumenthal[58] examined 50 cases of wounds, most of which resulted from the drainage of infected processes. These cases could be divided into three groups, 23 of which were in the first group. These are wounds which, very shortly before healing, became sterile. The number of organisms, which were relatively few from the beginning, rapidly decreased in number. Secretion, which at first was seropurulent became serous before healing occurred. Of these cases there were 16 cases infected with the staphylococcus albus, 5 cases with the staphylococcus aureus, and two with the staphylococcus aureus and streptococcus. The streptococci usually disappeared from the wound within two to three days. The average duration of healing in this group was from 10 to 11 days. In the second group there were 20 cases, the wound at no time becoming sterile before healing. The staphylococcus albus occurred in 8 cases, the staphylococcus aureus in 5 cases, and a staphylococcus albus and streptococcus in 7 cases. The average duration of healing was 13 days. Streptococci disappeared from the wound in from 5 to 7 days. In the third group there were seven cases, and these were those in which the healing time was markedly prolonged. In this group there were two cases infected with staphylococcus albus and streptococcus together, two cases with staphylococcus aureus and streptococcus together. In this group the number of organisms originally found was much greater than in the other two groups. In contradistinction to the above authors Flemming[55] states that the organism which was responsible for most of the serious infections in man is the streptococcus.

The possibility of anaerobic organisms infecting wounds must be especially considered in the lacerated and contused wounds. Even though many more such infections were seen during the World War, enough occur in this age of the automobile that it behooves every physician to consider an anaerobic infection in all contused wounds. The two most frequent offenders are the tetanus bacillus and the Welch bacillus. Recently Zeissler and Neller[59] reported 21 cases of gas gangrene which occurred in a relatively small number of traffic injuries. Seventeen of these were complicated by compound fractures and of these 7 were fatal. As these organisms are anaerobic and can probably only grow either in devitalized muscle (its growth being dependent upon muscle gycogen) or in symbiosis, *i. e.*, pyogenic organisms, the imperativeness of a thorough debridement in all extensive injuries, especially those involving muscles, is evident.

In all penetrating and contused wounds the prophylactic administration of tetanus antitoxin is imperative. Ashhoff and Robinson[60] (Meyer) have produced strong experimental evidence that the immunization resulting from the injection of anti-tetanic serum becomes ineffective in about ten days, and they advocate the second administra-

tion of antitoxin on the eighth day in all suspected cases. Meyer[3] also advocates this procedure.

TREATMENT OF INFECTED WOUNDS

Any wound seen 12 hours after its production should be considered infected, and should be treated as such. In badly traumatized wounds in which there is considerable devitalization of tissues it is often desirable and even imperative to remove the devitalized structures which especially favor the development of an infection. Such a wound should not be closed primarily but is best left open.

Since the introduction of antiseptic surgery by Lister, there has been a continuous attempt on the part of surgeons to sterilize wounds by means of antiseptics. At the present time there are two large schools, one which teaches that sterilization of wounds by antiseptics is the most important part of the treatment of such wounds, and the other which teaches that the increase in the resistance of the part, together with mechanical sterilization, is more physiological and a better procedure. Concerning the use of antiseptics Flemming[55] states, "I can remember in the days when I was first admitted to the surgical wards as a dresser, there were always a certain number of septic wounds which we were instructed to dress with this or that antiseptic, which stood in jars around the fire, and which we were told possessed great virtues as destroyers of microbes in the wounds. These antiseptics were chiefly carbolic acid, mercury salts, and boric acid. The wounds were religiously dressed twice a day with these lotions, and although it was obvious that the antiseptic did not kill the microbes in the wound, we were always told that it would kill many of them and so the condition would be better than if no antiseptic were used. We were not then in a position to criticize this view."

Before considering the chemical antisepsis of wounds, let us review the normal bacteriacidal properties of a wound. As has been stated previously, the antitryptic power of blood and wound serum inhibits the growth of certain organisms, especially the serosaprophytes. Wright[52] has shown that the streptococci are the only organisms which can grow, to any extent, in normal wound fluids. The leukocytes in a wound have, in addition to the power of phagocytosis, a direct bactericidal effect, as has been definitely shown by Flemming[55] and Wright.[52] Leukocytes can exert their greatest bactericidal effect when they are not suspended in fluid. The value of absorbent dressings on wounds is evident. That many antiseptics exert an inhibitory and lethal effect on organisms *in vitro* cannot be denied. "Speaking generally, it has been shown that antiseptic solutions showed a maximum bactericidal action when they are allowed to act on the microbes in a watery medium; their action is more feeble when the medium is of a serous character; it is still less in blood; it is further reduced when the medium is of a purulent character, while least of all will an antiseptic act on bacteria embedded in a piece of tissue." (Flemming[55].)

When one considers the effect which an antiseptic exerts upon wound bacteria, several factors must be taken into account. One of the most important of these factors is the rate at which the antiseptic acts both upon the bacteria and the leukocytes in the wound. Generally speaking, it might be said that any antiseptic having a detrimental effect on a micro-organism exerts the same detrimental effect, to a more or less degree, on the living cell of the part. The use of phenol, and its derivatives, as an antiseptic agent in the treatment of wounds is mentioned only to be condemned. Levai,[61] in 1897, observed carbolic gangrene in 26 cases in which wounds had been treated with phenol. In 12 cases the phenol had been used in weak solutions, and in 14 it had been used in concentrated solution. Levai performed a large number of experiments in animals, employing not only phenol but also weak solutions of other chemicals, such as lysol, mineral acids, acetic acid, potassium and sodium hydrate. These

experiments showed that very weak solutions produced an edema and hyperemia of the part, which led to mummification as the result of necrosis of the cells so treated. The necrosis, Levai concluded, was due to the cell's being attacked by chemicals. Harrington,[62] in 1900, described 18 cases of phenol gangrene which he had observed. He was able to select from the literature 132 cases of carbolic gangrene. In all cases the gangrene was the result of the application of phenol as wet dressing in a percentage of from 1 per cent to 5 per cent. Harrington[62] states that the injury from pure carbolic acid is less serious than from weak solution. The action of the weak solution is insidious. Le Clerc[63] emphasizes the fact that in cases of phenol poisoning generalized sypmtoms, such as hallucination, excitement, delirium, and high fever may be present. It is evident that neither phenol nor any of its derivatives should be used as a dressing in the treatment of wounds.

Chutzelsohn[64] has irrigated wounds with hot water (36° to 40°C), with very good results. The active hyperemia which is thus produced he considers very beneficial. Ebeling[65] demonstrated that the rate of wound healing was greatly influenced by the temperature. Working with alligators he found that an increase of 10° C. in the temperature doubled the rate of healing. Rieder[25] studied the reaction of blood vessels to various stimuli and the effect which these stimuli have on normal healing. From his studies he divides arterial hyperemia into two types: (1) those which are produced by the application of heat (water 38° to 40° C.) and (2) those which are produced by irritating substances. The former he terms "paralytic or warm hyperemia"; the latter he terms "active or irritative hyperemia." The greatest degrees of hyperemia were obtained in the irritative type produced by the use of a hot fan, followed by the application of ice, or the application of steam followed by ice. In those wounds in which the hyperemia was most marked healing was most rapid. Rieder[25] found that wound healing was affected by division of the sympathetics by division of the dilator nerves combined with sympathectomy, by stimulation of the dilators combined with sympathectomy, and by various types of skin irritation.

Within recent years numerous antiseptics, especially dye stuffs, have been introduced into surgery. During the World War introduction of chemicals of the chlorine group as antiseptic materials in surgery marked definite progress in surgical technic.

"All the antiseptics of this group are characterized by chemical instability in the presence of organic matter and, therefore, conditions favorable for their use must include either provision for their frequent renewal or the use of some immiscible solvent for the solvent so that the active compound may be gradually liberated." (Dakin and Dunham)[66]. The antiseptics of the chlorine group are effective because of their ability to yield chlorine, which combines with the protein of the microorganism, destroying the bacterium. The antiseptics of the chlorine group are (1) hypochlorous acid and its salts; (2) chloramine T (sodium toluene sulphonchloramide); (3) dichloramine T (toluene sulphondichloramide). Dakin's solution is the antiseptic of the chlorin group which has been most extensively used. This solution is a slightly alkaline (4.5% to 5½) solution of hyporchlorite of sodium. This percentage must be maintained because a solution weaker than a .4 per cent solution is insufficienty active, whereas on stronger than .5 per cent is irritating and caustic. Dakin's solution, when applied in the proper concentration is non-irritating to those wounds in which there is an exudate. It is essential that Dakin's' solution be prepared daily, as it is unstable and deteriorates rapidly. The solution should not be heated above 37°C, and must not be used in combination[66] with iodine, as the combined actions of the two halogens is irritating.

Dakin's solution should be used only according to the technic of Carrell[67], which consists of introducing the freshly prepared Dakin"s solution into the wound by means of small tubes which reach all recesses of the wound. The arrangement of the tubes should be such that the liquid may spread readily over the whole surface of the wound. Dakin's solution should never be used as a wet dressing, nor as an irrigating solution. It is also important in the treatment of wounds that the surrounding epithelium be protected by vaseline strips. Clinically, Dakin's solution, when used according to the correct technic, is not ony bactericidal, but is also of great value in loosening sloughs and removing exudate from wounds. The sloughs are loosened probably through the action of tryptic ferments. These ferments result from the destruction of the leukocytes caused by the Dakin's solution[55]. During the course of treatment, smears are made from the wound every 2 to 3 days. These specimens are fixed, stained, and examined by means of the oil immersion lens. The number of organisms present in a microscopic field are counted. When the smear shows no organisms, or when only one organism to five or six fields is found, the wound may be considered sterile enough for secondary suture. During the World War it was customary in a number of base hospitals to require three successive negative cultures, the last being controlled by culture, before a secondary suture was performed. The average time required for badly infected wounds to become sterile was 17 days[44].

The use of Dichloramin T has been advocated by a large number of authors because of its relative stability and its non-irritating qualities. Sweet[68], in 1917, reported its use in war wounds. Recently Adams[69] reported beneficial results obtained from the use of this substance over a period of seven years. He advises a 5 per cent solution instead of the 20 per cent solution as advocated by Sweet. To 25 grams of dichloramin T crystals enough chloreosane is added to make 500 grams by weight. Dichloramine T should be carefully prepared. The utensils employed in preparing the oily solution should be sterilized in the hot air sterilizer as water precipitates the amine (Cohn)[70]. The solution must be kept in dark bottles and used only when clear, as cloudiness is caused by an accumulation of crystalline deposit of toluene sulphonamide and indicates decomposition of the solution[66 71].

Within recent years numerous other antiseptics have been advocated in the treatment of wounds. On the continent such substances as flavine, trypaflavine and rivanol have been used with varying and rather indefinite results. In America the two most widely advocated substances are mercurochrome, 220 soluble, and hexylresorcinol, or S. T. 37. Through the influence of Hugh Young[72], mercurochrome has gained a firm foothold in the treatment of wounds. Recently, Sanner and Hill[73], working in Young's laboratory, reported beneficial effects obtained by the use of mercurochrome in localized infections. Wright[74] has shown that mercurochrome is of little or no value as a bactericide for the bacillus pyocyaneus, but that it is as effective as iodine in destroying staphylococcus aureus. Rodriguez[75], in comparing mercurochrome and iodine, as antiseptics for the mucous membrane of the mouth, concluded that mercurochrome in a 2 per cent aqueous solution is too ineffective to be used as an antiseptic. A 5 per cent solution of mercurochrome, alcohol and acetone, possesses definite advantages over the aqueous solution but is ineffective in such a large percentage of cases that it must not be considered as an ideal antiseptic for he buccal cavity.

Leonard and Feirer[76] advocated the use of hexylresorcinol in a solution of water and glycerine. This preparations is known as ST. 37, which indicates a surface tension of 37. This dilution of hexylresorcinol was chosen because of its low surface tension, enabling the bactericide to attack the organisms more readily. These same

authors report the effect of this substance on infected wounds.[77] The wounds which contained the various pyogenicorganisms were treated with S. T. 37. Cultures taken at 1, 2 and 5 minutes after the application of the bactericide to the wound were invariably sterile. In contrast to these results Allen and Wright[78] found that S. T. 37 was not effectively bactericidal for bacillus pyocyaneous in 48 hours or less, for staphylococcus aureus in less than 90 minutes, but that the substance destroyed streptococcus hemolyticus in less than 15 minutes.

From the above it would appear that the use of antiseptics in wounds is of relatively little value. Flemming[55] states: "In view of the observations which I have made, and which are quoted above, venture to suggest that the antiseptics at present in use will only exercise a beneficial effect in a septic wound if they possess the property of stimulating or conserving the natural defensive mechanism of the body against infection, and if such a thesis be true, then it brings the antiseptic and the physiological treatment on to the same basis, and it makes it necessary in the estimation of the value of an antiseptic to study its effect on the tissues more than its effect on the bacteria...." "It is very difficult for the surgeon not to be deluded into the belief that he has in the antiseptic a second string to his bow, and consequently it will tend to make him less careful in his surgical treatment of the wound. All the great successes of primary wound treatment have been due to efficient surgery, and it seems a pity that the surgeon shall wish to share his glory with a chemical antiseptic of more than doubtful ability."

The physiological therapy of wounds is probably the best method of treatment. This consists of physiologic rest of the part, obtained by splinting; the building up of resistence of the individual; the production of a local hyperemia; and the application of hypertonic solutions to the wound.

Gaza[79] believes that the mere hypertonicity of a solution is not responsible for the beneficial effects obtained. He employed the following solutions, in 10 per cent concentration: potassium chloride, sodium chloride, sodium sulphate, calcium chloride, magnesium chloride, magnesium sulphate. He found that solutions of sodium chloride produced a marked increase in size of the granulation tissue so that it reached from 2 to 4 millimeters above the surface of the skin. Granulation tissue which was treated with calcium chloride solutions shrunk within a few hours. The secretion from the wounds treated with sodium chloride solutions became more profuse and purulent, whereas that from the wound treated with calcium chloride solutions became more profuse and purulent, whereas that from the wound treated with calcium chloride solutions became less in amount and serious in quality. The other salts had relatively little effect on the wounds. Magnesium sulphate, however, was detrimental at times. From these results Gaza[79] concludes that hypertonic salt solutions are beneficial in the treatment of wounds not because of the hypertonicity but because of the ionization of the wound. He believes that the cation is responsible for the beneficial effect; sodium salts make the cells more permeable, whereas the calcium salts make the cells less permeable. Gaza[79] advises the application of sodium salts in those wounds in which there is considerable defect and in which it is desired to have an increase in the amount of granulation tissue. As calcium salts are much more beneficial in cases in which epithelialization is desired, these should be employed after the wound is filled with granulations. Flemming[55] observed that following the use of hypertonic salt solution (5 per cent sodium chloride) that the wound secretion was markedly increased. This he believes is desirable, as in this way fresh serum is extracted from the granulation tissue, which increases the antitryptic power of the wound. Hyper-

tonic salt solution, also because of its action on the leukocytes, increases the tryptic power of the wound, which is beneficial in those cases in which there is considerable slough. Recently Schueck[80] has advanced the theory that the effect of calcium in a wound is comparable to the action of the sympathetic nervous system, whereas the effect of the potassium salts is comparable to that of the parasympathetics. He believes that in inflammation there is a relative increase in the amount of potassium, whereas after the subsidence of the inflammation, the potassium-calcium balance is again obtained.

In order to prevent the accumulation of secretion in wounds the frequent change of dressing is of great value, especially in those in which there is considerable discharge. As Wright[52] has emphasized, the early closure of a wound, *i. e.*, the approximation of the wound edges and the production of hyperemia by means of heat or contrast baths is desirable.

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MEDICAL SOCIETY MEETINGS.

The success of the recent Louisiana State Medical Society Meeting held last month was due to several factors. In the first place everyone connected with the arrangements of the meeting from President Menville and Chairman Gelpi down to the office boy of the Society, worked with enthusiasm, whole heartedly, and with personal sacrifice to make the meeting the most interesting and most instructive ever held. In the second place the Chairmen of the different Committees were selected with peculiar felicity and appropriateness; it would have been almost impossible to pick out any men who would have functioned more efficiently than the Chairmen. Thirdly the scientific exhibit represented a real scientific display and in the fourth place, but a most important consideration, the essayists on the program and the discussors of their papers had prepared their material in a more careful and thorough manner than is usually the cast at State Meetings. Lastly the hosts of the meeting, one and all, entered into the occasion with the same spirit with which the visitors came: to learn something, to enjoy much and to renew old friendships.

It is our earnest wish that our sister society, the Mississippi State Medical Association, may have as splendid a meeting as did the Louisiana State Medical Society. There is every reason to believe they will. The scientific program is excellent, the time of year propitious, the place of meeting a delightful city and the Gulfport hosts a most charming and enthusiastic group. We feel confident that those members who are present will have a magnificent time, while the poor unfortunates who perforce are obliged to be absent, will miss much.

NEW PRESIDENT OF THE LOUISIANA STATE MEDICAL SOCIETY

Dr. Gouaux of Lockport, Louisiana, was elected head of the State organized medicine at its recent meeting in New Orleans. The election of Dr. Gouaux represents a spontaneous recognition by members of the State Society of a man who has done much for the organization in the State. For years the new president has represented the Third Congressional District and is responsible for organizing each and every parish in his district. He has been interested in the State Medical Society itself, and is a regular and always-present attendant at the yearly meetings.

Frank T. Gouaux was born at Natchitoches in 1883, and received his preliminary education in New Orleans. He graduated from the Medico-Chirurgical, University of Pennsylvania School, Philadelphia, 1906, took a Master's Degree in Loyola University in 1909. After serivng as an interne

in the Medico-Chirurgical Hospital in Philadelphia, he settled in Lockport where he has practiced ever since. In addition to his activity in medical affairs Dr. Gouaux has been prominent in the local civic and business affairs of his home town. He has been President of the Lockport Association of Commerce as well as a member of this organization for some years.

In the selection of their new president the State Society has chosen well; for the next year a man will represent it who is not only an active, integral force in the organization but one who has been successful in medicine, business and all else that he has undertaken. The Journal also extends its warm congratulations to the new head of the Louisiana State Medical Society upon the honor that has been conferred upon him.

SYPHILIS AND DIABETES.

Syphilis is an ubiquitous disease, and while diabetes mellitus is considerably less frequent in the general population, nevertheless it is said to be present in approximately one out of every hundred of the population. On account of the frequency of these two diseases it necessarily follows that considerable interest has arisen as to the effect that the one disease has on the other, and particularly as to whether there is any genetic relationship of syphilis to diabetes. This argument commenced some 75 years ago and has continued up to the present time. Lemann* has presented a most thorough review of the literature in a recently published, most complete discussion of the whole subject. He notes that there is extremely good clinical and postmortem evidence to show that diabetes may in some cases be produced by syphilitic diseases of the pancreas; a rare occurrence however, and one which is extremely unlikely to happen to the syphilitic patient. Diabetes, while attributed at times to syphilis of the central nervous system, is never secondary to this syphilic manifestation. Needless to state the occurrence of one or the other of the two diseases during the course of that disease which had not been previously present effects unfavorably the subsequent history of the case. While the progress is not as seriously effected as one would expect when there is an association of two such severe diseases as syphilis and diabetes, nevertheless there is an effect on the primary disease which is distinctly deleterious. One of the interesting observations which is made is that the diabetic with syphilis is much more likely to develop arterial diseases associated with gangrene than is the non-syphilitic individual with diabetes.

When one considers the frequency with which syphilis attacks the central nervous system, the cardio-vascular system, the liver and other important organs of the body, one is struck by the fact that the glands of internal secretion possess a peculiar freedom from the disease. Proof of this statement is substantiated by the pancreas, with its dual functions, as diabetes, the expression of disease of the internal secretory portion of the gland, is rare in the syphilitic.

*Lemann, I. I.: The relationship of syphilis and diabetes to one another. Am. J. Syph., 13:70, 1929.

ANTI-MALARIA MEDICATION.

Self medication is one of the habits and customs of the American people. This pleasant indoor and outdoor and all-the-year-round sport might be encouraged if the self medicator know what was the matter with himself, if he knew what drug he was taking or why he was so dosing himself. Unfortunately he invariably mis-diagnoses his own case and still more unhappily the medicinal preparations he is able to buy in the open market which he thinks would be of benefit are also frequently fakes, misbranded or mislabeled compounds or shot-gun cure-alls. Aside from the question of mis-diagnosis and inefficient and incorrect treatment, there is no reason why the average individual should not doctor himself, particularly so if he wishes to live only to an immature, young age.

As an example of the statement made above concerning inadequate medication, the United States Department of Agriculture through its Food, Drug and Insecticide Administration, has shown that extremely few of the preparations on the market labeled for the treatment of malaria contain sufficient quinine to constitute adequate treatment. The Department announces that it is only to take active steps in the immediate future to effect suitable changes in the formulas for the various preparations on the market labeled for the treatment of malaria which do not contain adequate quantities of the cinchona alkaloids. It is a great pity that the Government can not order these preparations off the market entirely. Even if they are made sufficiently active to meet the requirements for proper treatment of the disease, innumerable individuals will take the preparation with the belief that they have malaria when they have not, while a very large per cent of those individuals who may perhaps have the disease will take dosages totally insufficient to destroy the plasmodium. From the above evidence it is possible to deduct what has long been known: The self medicator thinks he has a disease, and usually he has not; but if he does, he will most certainly not affect a cure by doctoring himself.

THE NEW OFFICERS OF THE LOUISIANA STATE MEDICAL SOCIETY

At the last meeting of the House of Delegates of the Louisiana State Medical Society, Dr. Hermann Bertram Gessner was unanimously elected to the position of President-elect in the organization; a real tribute to a beloved physician, a scientific and learned practitioner and teacher of medicine.

The First Vice-President elected was Dr. C. M. Horton, one of the best known physicians in the southern part of the state and a man who has been deeply interested in the welfare of the organization.

Dr. Hiram W. Kostmayer was elected to the position of Second Vice-President. Dr. Kostmayer needs no introduction to the physicians of New Orleans as he has already served a term as President of the Orleans Parish Medical Society during which term of office, under his leadership, much was done to advance the standards of the Parish Society.

Dr. Roy B. Harrison, who was elected Third Vice-President, likewise needs no introduction to the doctors of the State. For years Dr. Harrison has been the very efficient and able Secretary of the Louisiana State Board of Medical Examiners. It is largely through his efforts and those of his Board that quacks and cults have been kept out of the State of Louisiana.

The only change that has occurred in the councilors of the Society was in the election of Dr. John McKowen as Councilor of the Sixth Congressional District.

The present members of the Committee on Public Policy and Legislation, of the Committee on Publication, of the Committee on Medical Defense, of the Committee on Hospitals and of the Committee on Health and Public Instruction were renominated and elected.

Dr. Randolph Lyons and Dr. W. H. Seemann were elected on the Journal Committee.

Dr. J. Q. Graves was nominated as Delegate to the American Medical Association with Dr. D. I. Hirsch as Alternate.

The next place of meeting will be Shreveport, a city which in the past has given a most royal welcome to the Society when it met there.

HOSPITAL STAFF TRANSACTIONS

JOINT CLINICAL MEETING, ORLEANS PARISH MEDICAL SOCIETY AND CHARITY HOSPITAL STAFF, MARCH 25, 1929.

The meeting was called to order by Dr. E. D. Fenner in the Miles Ampitheatre, Charity Hospital.

Dr. E. L. King presented as his first case a primipara whose pregnancy was complicated by the presence of an hookworm infection. The condition had been diagnosed in the course of a routine feces examination being conducted in all obstetrical cases on Dr. King's service. In 140 patients so examined there had been 7 positive hookworm cases. All had received thymol with no ill effects.

The second case shown by Dr. King was a 40-year-old multipara almost at term, whose pregnancy was complicated by the presence of a large goitre and a hookworm infection. The goitre had been present for 20 years. Her basal metabolic rate was +44, and she had had no treatment. Dr. King asked for discussion on these two cases, especially regarding their management and treatment.

In the discussion which followed, Dr. E. Bass asked whether any stool examinations had been made upon any of the newly born infants delivered from hookworm infected mothers. She recounted her observation of having found hookworm infection in a two weeks old infant. Dr. King replied that such examinations had been attempted but had not been made as yet. Dr. E. Bass also recounted the fact that she had seen several cases of so-called pernicious anemia which later proved to be cases of hookworm instead.

Dr. Faust spoke of the possibility of cases with feces positive for intestinal parasites being without any clinical symptoms.

In regard to the therapy, Dr. Cole recommended carbon tetrachloride as the drug of choice. Dr. Rucker spoke of the Public Health aspect of the disease.

A case of exophthalmic goitre was presented by Dr. J. Snelling. This case had been operated and almost all of the gland removed. She had received Lugol's solution prior to operation, and it had been continued for quite a long time following it. Her exopthalmos was still marked, and her basal metabolic rate remained somewhat elevated. Dr. Guthrie and Dr. Maes discussed the classification of goitre, Dr. Maes maintaining that in his opinion the classification of Plummer, while it left considerable to be desired, was at present the best and most practical one available. Dr. J. Danna discussed the case, and mentioned that he thought the use of Lugol's solution actually converted an exopthalmic goitre into a colloidal goitre, in so far as the gland structure was concerned This, he thought, explained the discrepancy in the pathological findings in the case under discussion and in other cases.

Dr. Fenner showed two very unusual congenital deformities. The first was a bilateral epiphyseal coxa vara in a young female negro. The second case was one of marked bilateral club feet and bilateral congenital dislocation of both knees and hips.

Dr. Rucker, of the Marine Hospital, read a report of the first case of endemic typhus fever, or Brill's disease, in Louisiana. This case had originated at the Marine Hospital, and was thought by Dr. Rucker to suggest the possibility of some other vector than the body louse as being responsible for the disease.

Drs. Fossier, Danna and Musser discussed the case.

A young female child, shown by Dr. A. Mattes, had been relieved of eneuresis by the installation of 2 ounces of silver nitrate into the bladder twice weekly.

The second case presented by Dr. Mattes was of a broncho-renal fistula following a pyelonephrosis. A nephrotomy had been done.

Dr. Mattes then presented three cases of chronic granuloma of the vulva treated by vulvectomy. Dr. Reed discussed the cases.

Dr. Otis closed the meeting with two cases of types of psychomotor manifestations.

WILLARD R. WIRTH, M. D.

CHARITY HOSPITAL MEDICAL STAFF MEETING, MARCH 19, 1929.

The first case presented was an aneurism of the thoracic aorta in a colored male, by Dr. F. Fenno. There was a history of the patient having been struck on his back by a heavy falling object. Three months following this accident he began to complain of a dull ache over the thorax, along with certain sensory and motor symptoms in the left leg. When seen there was a complete motor paralysis of both lower extremities, absent abdominal reflexes, and a retention of urine. Over the third to the seventh dorsal spines there was a pulsating mass. The blood Wassermann was weakly positive. Roentgenograms showed marked erosion of the vertebrae by the aneurism. The

case was of interest because of the history of injury and the marked pressure signs and symptoms.

Dr. N. Thiberge discussed asthma and hay fever, dwelling upon the use of vaccines and pollen extracts in these conditions. He showed a series of lantern slides to demonstrate the clinical results from the use of these, and discussed the dosage and selection of these agents.

One autopsy was brought before the staff. A tentative diagnosis of coronary block had been made. At autopsy the aorta was found to have ruptured into the pericardial sac.

WILLARD R. WIRTH, M. D.

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL STAFF MEETING, MARCH 11, 1929.

Abstract: Post-Mortem Report—Generalized Melanoblastomatosis—Dr. Leon S. Lippincott.

White, male, age 57, occupation, lawyer. Autopsy performed February 23, 1929.

General Inspection: Development of skeleton and muscles, powerful; general nutrition, moderately emaciated; left eye missing. Otherwise, not remarkable. Superficial arteries calcareous.

Abdominal Cavity: Enlarged lymph nodes, gray and black, greater curvature of stomach, region of common bile duct, head of pancreas, mesentery and black nodule in perirenal fat, right.

Liver, chocolate brown, mottled gray, with numerous black nodules, surface and throughout sub-

Pancreas enlarged at head, with numerous adhesions.

Thorax: Sternum shows much brown material in medullary portion, protruding through posterior surface; ribs similar.

Left pleura contains 1 liter slightly turbid fluid.

Right lung shows numerous black areas; lower lobe partially consolidated. Left lung similar but no consolidation.

Heart shows calcareous deposits in upper left ventricle; coronary arteries markedly calcareous but patent. Some calcareous deposits in first inch of aorta.

Deep Strictures: Vessels below bifurcation of abdominal aorta calcareous. Rather numerous black nodules along thoracic aorta. Thoracic vertebrae contain numerous black nodules.

Microscopic Examination: Melanoblastoma of lungs, rib, liver, spleen, perirenal fat, and lymph nodes. Broncho-pneumonia, lower lobe, right; acute pancreatitis; considerable calcareous infiltration of thoracic aorta; parenchymatous degeneration of kidneys.

Clinical History: Entered hospital November 21, 1928, complaining of loss of strength, gradual for past four months; dyspnea on exertion; confined to bed for past three weeks. History of good general health except that left eye was removed in 1911, and was microscopically shown to have melano-sarcoma; no symptoms since from eye as far as known.

Physical Examination: Temp. 101°F., pulse 110, respiration 18; heart enlarged; maxillary sinusitis. Blood: Hb. 62%; erythrocytes 2,488,000; leukocytes 17,000; differential leukocyte count—small lymphocytes, 13%, large lymphocytes, 5%, neutrophils, immature, 34%, mature, 48%. Urea nitrogen was normal and Wasserman and Kahn tests negative. Sedimentation rate increased.

Subsequent: Blood transfusion was performed and sinusitis treated with some improvement clinically and in blood picture temporarily. Removed to home on December 23 at own request. Cachexia became more marked and weakness extreme. Death February 22.

Special Interest: Long period between removal of eye and symptomatic recurrence—nearly 18 years.

PROCEEDING OF THE APRIL MEETING HOTEL DIEU STAFF.

The monthly meeting of the Hotel Dieu Staff was held April 15, 1929, Dr. J. T. Nix presiding.

The scientific part of the meeting was as follows: Exhibition of a case of cavernous sinus thrombosis by Dr. T. J. Dimitry and Dr. Guy Jones. This very interesting and unusual case was illustrated by anatomical drawings and was discussed by Drs. Danna, J. E. Landry, Maurice Couret and H. Dupuy, Dr. Dimitry closing the discussion.

Another case was shown, one of diphtheria complicated by lymphatic leukemia, the patient of Dr. Ruth Aleman, a little girl ten years of age had been sent to the hospital a week previously with the above diagnosis. Dr. Maurice Couret opened the discussion and exhibited several blood smears made of this case; discussion by Drs. Val Fuchs, J. B. Guthrie, J. T. Nix and J. A. Brennan.

Dr. Lucien Fortier reported a case of thymoma with complicating hyperthyroidism in a man of twenty-seven years. Clinical cure resulted from treatment by radiation of chest and thyroid re-

gion. Patient is now well one year after first seen.

Two cases of aneurysms of the arch of aorta were demonstrated, one of the secular type and the other one of general dilatation.

A case of hepatic abscess with marked upward displacement of right diaphragm, post operative pneumonia and pleurisy with pneumonia.

Dr. Aldea Maher, junior pathologist, presented a series of pathologic sketches and paintings she had made in the laboratory. The group consisted of appendices, gall bladder, ovaries, tubes kidneys in various stages of inflammation; also diverticulum of the appendix with microscopic cross section and hernia showing strangulation and cysts of the sebaceous type and of the fallopian tube (tubal pregnancy).

Benign tumors of uterus (polypus and leiomymata) and of fat (lipoma) malignant tumors of the breast, intestines, ovary, uterus and kidney (hypernephroma).

This work of Dr. Maher was very warmly received. The Chair announced that the New Orleans Gynecological and Obstetrical Society would hold their next meeting as our guests and also stated that the weekly Pathological conference would be held on Mondays at 11:00 a. m. with Dr. Maurice Couret, Senior Pathologist, and Staff leading the discussions.

The hospital report and the deaths occurring during the month were very fully discussed.

LUCIEN A. LE DOUX, M. D.

TRANSACTIONS OF THE CHARITY HOSPITAL SURGICAL STAFF

The regular monthly meeting of the staff was held on March 20, 1929, with Dr. Graffagnino presiding. Routine business was carried out. After this the regular scientific session followed.

The usual monthly statistical report was at hand. A copy of this report is sent, each month, to the various members of the staff for their review and discussion.

A case of bilateral hypernephroma, which had been completely autopsied, was first brought up for discussion. An interesting feature of this case was the fact that one kidney was completely involved, whilst the other showed involvement of the upper pole only. The case was liberally discussed and a number of points of interest were brought out.

The second and third cases were brought up together in order that they might be simultaneously discussed. The first was that of a white male who died of a lobar pneumonia and empyema; and the other a white male child, 13 months of age, who died, also, of a broncho-pneumonia and empyema. Many practical points were brought out in the discussion. The methods of handling such cases came in for due consideration.

A white male, aged 65 years, dying of a fibro-sarcoma of the mesentery, was the last patient presented. During the discussion it was pointed out that primary sarcoma of the mesentery is rare, and that this case, therefore, presented an unusual clinical curiosity.

FRANK LORIA, M. D.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of April besides the regular meeting of the Board of Directors, the Society held one special meeting and one joint Scientific and Quarterly Executive Meeting.

The meeting held April 8, was a special meeting and public discussion on Cancer with the following program:

1. Introductory remarks by the President, Dr. E. D. Fenner.

2. The nature, course and present day conception of the cause of cancer, Dr. C. W. Duval.

3. Exhibit of the Canti films preceded by a brief explanatory introduction, Rudolph Matas, M. D.

Exhibit of the Canti films, under the direction of Dr. I. M. Gage, Chairman, Scientific Essays Committee.

[Through the courtesy and favor of the American Society for the Control of Cancer the Canti films (R. G. Canti, St. Bartholomew's Hospital and Cambridge University, London,) were exhibited. This unique moving picture shows cell life in living cultures of normal and cancer tissue. The cells, enormously magnified, appear in all the detail of their motile, reproductive and aggressive activity. In addition, the effects of radiation with radium emanation upon the life of normal and cancer cells are shown vividly as the moving microscopic pictures are projected on the screen.]

5. Concluding remarks by the president, Dr. E. D. Fenner.

This meeting was exceptionally well attended, the hall being filled to capacity and many people were turned away. A second showing of the Canti films was given the next day.

At the joint Scientific and Quarterly Executive Meeting the program was as follows:

"Intestinal Diverticula," by Dr. J. Holmes Smith, Jr.; discussed by Drs. Alton Ochsner, Chaille Jamison, Urban Maes, L. J. Menville, E. D. Fenner, T. B. Sellers and D. N. Silverman.

"Allergic Reaction," by Dr. Narcisse F. Thiberge; discussed by Drs. F. M. Johns, J. A. Devron and E. D. Fenner.

"Serial Pyeloureterography, Its Value in Medicine"—lantern slides, bu Dr. A. Mattes; discussed by Dr. W. A. Reed and Dr. Smith.

Following the scientific program the Society went into Executive Session when the reports of the Secretary, Treasurer, Librarian and the special and standing committees for the first quarter, 1929, were read.

During the past month the following doctors were elected to active membership:

Drs. Jos. N. Ane, Ralph J. Christman and Park Howell.

REPORT OF TREASURER

Actual book balance 2/28/29	$4,490.14
Receipts during March	1,314.79
Receipts for insurance	773.07
	$6,578.00
Expenditures	$3,630.63
ACTUAL BOOK BALANCE	$2,947.37

REPORT OF LIBRARIAN

Sixty-one books have been added to the Library during March. Of these 41 were received by binding, seven by gift, one by purchase and twelve from the New Orleans Medical and Surgical Journal. A list of new titles of recent date is appended.

Two bibliographies have been added to our files on subjects as follows: Amebiasis; Distribution and Incidence Encephalomyelitis Following Vaccination.

The work of sorting and arranging the gift journals and books from Dr. Van Wart, is progressing nicely and will, we hope, be completed before May 1. A number of valuable files is being added to our shelves from this source. A list of donors for the month is as follows:

Columbia University College of Physicians and Surgeons, Medical College of South Carolina, Drs. J. H. Musser, C. Jeff Miller, P. T. Talbot, Haidee Weeks, Iowa State Library Medical Department, Milwaukee Academy of Medicine, University of Alabama School of Medicine and Dr. E. H. Walet.

NEW BOOKS—MARCH

Alleman—Medical Interpreter, v. 10, 1929.

Cort—Studies on Hookworm, Ascaris and Trichuris in Panama, 1929.

Henry Phipps Institute—21st Annual Report, 1928.

Lynch — Activities Concerning Mobilization Camps, 1928.

Peter—Extraocular Muscles, 1927.

Rice—Race Hygiene, 1929.

Burn—Methods of Biological Assay, 1928.

Fowweather — Clinical Chemical Pathology, 1929.

Institute of Child Guidance—Report, 1928.

Burkhart—Care of the Mouth and Teeth, 1928.

Lewis—What Everyone Should Know About Eyes, 1928.

Allen—Diabetes and its Treatment, 1928.

Kahn—Kahn Test, 1928.

Monrad-Krohn—Clinical Examination of the Nervous System, 1928.

Donnie—Syphilis, 1928.

Rowe—Handbook of the diabetic, 1928.

Goldzieher—Adrenals, 1928.

Bassler—Diseases of the Intestines, 1928.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

PARISH MEDICAL SOCIETY OFFICERS FOR 1929

The following Parish Medical Societies have elected officers for 1929 as follows:

Beauregard Parish: President, Dr. R. L. Love, DeRidder, La.; Secretary-Treasurer, Dr. Thos. R. Sartor, DeRidder, La.; Delegate, Dr. F. R. Frazar, Merryville, La.

Bossier Parish: President, Dr. J. B. Hall, Alden Bridge, La.; Secretary-Treasurer, Dr. C. M. Tucker, Haughton, La.

Acadia Parish: President, Dr. H. L. Gardiner, Crowley, La.; Vice-President, Dr. M. L. Hoffpauir, Crowley, La.; Secretary-Treasurer, Dr. A. R. Morgan, Crowley, La.; Delegate, Dr. J. W. Faulk, Crowley, La.; Alternate, Dr. A. B. Cross, Crowley, La.

Washington Parish: President, Dr. U. S. Hargrove, Bogalusa, La.; Vice-President, Dr. A. W. Martin, Bogalusa, La.; Secretary-Treasurer, Dr. J. W. Pafford, Bogalusa, La.; Delegate, Dr. W. W. Warner, Bogalusa, La.; Alternate, Dr. J. H. Slaughter, Bogalusa, La.

MEETING OF THE LOUISIANA STATE PEDIATRIC SOCIETY

The annual meeting of the Louisiana State Pediatric Society was held in New Orleans, Monday, April 8, 1929, in accordance with the usual custom of meeting at the same place and during the same week as the meeting of the Louisiana State Medical Society.

The meeting was called to order at 10 A. M. by Dr. L. R. DeBuys, Chairman. There were 20 active members present, together with a large number of visitors. The program was very instructive and the members and visitors entered into the discussions freely. Luncheon was served at the Louisiane Restaurant.

Program.

Morning Session.

1. "Congenital Malformations of the Intestinal Tract," by Dr. Charles J. Bloom, New Orleans, La.

2. "Probable Primary Ovarian Sarcoma, with Multiple Metastasis in a Girl Four Years Old," by Drs. J. A. Crawford and L. A. Hebert, Lake Charles, La.

3. "The Role of Banana in the Diet of Infants," by Dr. L. von Meysenbug, New Orleans, La.

Afternoon Session.

(Case Reports)

1. "Gastric Ulcer in a Girl Three Years Old," by Dr. Maud Loeber, New Orleans, La.

2. "Pyloric Stenosis and Influenzal Meningitis," by Dr. John Signorelli, New Orleans, La.

3. "Celiac Disease," by Dr. E. A. Socola, New Orleans, La.

4. "Myelo-encephalitis Following Small Pox Vaccination," by Dr. Julian Graubarth, New Orleans, La.

The society adopted a resolution which provides for an additional meeting in October of this year, the date and place of the meeting to be fixed by the Executive Committee.

The following officers were elected and installed for the ensuing year:

Dr. J. A. Crawford, Lake Charles, La., President.

Dr. John Signorelli, New Orleans, La., Vice-President.

Dr. C. T. Williams New Orleans, La., Secretary-Treasurer.

A RESOLUTION ADOPTED ON MARCH 28, 1929, BY THE ST. LANDRY PARISH MEDICAL SOCIETY

"Whereas: It hath pleased Almighty God to remove from our midst two valued members of this Society, Dr. J. B. Guillory of Grand Prairie, and Dr. Lawrence Daly of Bellevue.

"Resolved: While bowing in humble submission to the Divine Will, we deplore the loss of valued friends and cherish their memories as honest and conscientious citizens, able and humane physicians, whose loss has been keenly felt in their respective communities. 'May they rest in Pease.'

"Further Resolved: That this Resolution be spread on the minutes and a copy sent to their families and to the Louisiana State Medical and Surgical Journal."

SUMMER CLINICS, CHICAGO MEDICAL SOCIETY

The Chicago Medical Society will hold a two weeks' clinics at Cook County Hospital June 17-29. Members of the hospital staff will give these clinics on the following schedule:

8 to 10 a. m., Medical and surgical clinics in amphitheatres.

10 to 12 a. m., Ward walks.

12 to 1 p. m., Luncheon.

1 to 3 p. m., Medical and surgical clinics in amphitheatres.

3 to 5 p. m., Ward walks.

The amphitheatre work will be devoted to medical and surgical dry clinics and lectures. Two amphitheatres will be used simultaneously, one for medical and one for sugical clinics. Each clinic will be one hour in length, thus giving four medical and four surgical clinics daily. Operative work will be done during the hours devoted to ward walks. The clinical work will be confined largely to general medicine and surgical subjects.

It is planned to hold six meetings to be addressed by speakers other than members of the hospital staff on such subjects as heart disease, tuberculosis, obstetrics, physiotherapy, gastro-intestinal disorders and possibly diabetes.

A registration fee of ten dollars will be charged to cover the cost of preparing for and conducting the clinics.

For further information apply to the Chicago Medical Society, 185 N. Wabash Ave., Summer Clinics Committee.

There will be a Post-Graduate Course in Ear, Nose and Throat surgery for American Physicians at the University of Bordeaux, France, commencing July 22, 1929.

Dr. Leon Felderman, Philadelphia, Pensylvania, is in charge of registering the American Physicians for this course.

The greatest honor which the profession of pharmacy can bestow—the Remington Medal—has been awarded by the American Pharmaceutical Association to Dr. Wilbur L. Scoville, chief of the analytical department of Parke, Davis & Co., the Association has just announced.

The award was made for Dr. Scoville's "distinguished service to pharmacy" in acknowledgment of his outstanding accomplishments as chairman of the National Formulary Committee.

GORGAS LABORATORY OPENED AT PANAMA

The Gorgas Laboratory of Tropical Research, founded in memory of the late Major Gen. W. C. Gorgas, who paved the way for the construction of the Panama Canal by eliminating yellow fever along the Isthmus, was formally dedicated.

Dr. Franklin H. Martin of Chicago, chairman of the board of directors of the Gorgas Memorial Institute of Tropical and Preventive Medicine at Washington, came to Panama City especially to take over the new laboratory and supervise the beginning of its work.

The building which houses the laboratory was built by the Panama Government as a medical school, but was never used. It has been lent to the laboratory until permanent quarters can be obtained.

The American Congress last year appropriated $50,000 annually to support the work in which all Latin-American countries were invited to participate.

Dr. Herbert C. Clark, director of the laboratory, has had long experience in tropical countries, including eight years in the Canal Zone.

Installation of laboratory equipment will take several months, after which research work will begin in earnest upon tropical diseases, especially malaria. Particular attention is being directed to varieties of mosquitoes in different regions.

ALL LATIN-AMERICA TO SHARE

The site of the Gorgas laboratory is just outside the city of Panama in the region of Bella Vista on the seashore. It was donated by the republic of Panama, which also will build the laboratory at an estimated cost of $750,000. This will cover only the cost of the building. Additional sums will be required for laboratory equipment.

Assurances have been given by many Latin-American Governments that they will contribute to the permanent maintenance of the laboratory. The purpose of the laboratory is to make studies of tropical diseases not only a protection to life and property in the Canal Zone, but also a protection to the United States against the influx of diseases which might become indigenous there.

PRESENT FACILITIES INADEQUATE

The present facilities of Canal Zone hospitals are not adequate for the carrying on of research work, according to members of the Gorgas Memorial Institute.

The purposes of the establishment are explained in a statement by Representative M. M. Thatcher of Kentucky, author of the bill committing this government to its support.

"There are many malignant diseases in the tropics yet to be studied and yet to be understood," he said, "and I suggest that it is of paramount importance that they be studied and understood and aired. Therefore, it is of the highest importance that the United States should do its part to make this laboratory a success."

Among those who are associated with the Gorgas Memorial Institute are Calvin Coolidge, Admiral Cary T. Grayson, Silas Strawn, Bernard Baruch and Surgeon General Hugh S. Cumming of the Public Health Service.

UNITED STATES PUBLIC HEALTH SERVICE

Surgeon J. W. Trask. Directed to proceed from Baltimore, Md., to Washington, D. C., and return, for the purpose of studying plans at the Bureau, now in course of preparation for the new marine hospitals at New Orleans and San Francisco, this with a view to new construction at the Marine Hospital, Baltimore. Mar. 30, 1929.

A. A. Surgeon L. E. McCanna. Relieved from duty at Pitcher, Okla., and assigned to duty at Quarantine Station, New Orleans, La. April 2, 1929.

Surgeon W. C. Rucker. Directed to proceed from New Orleans, La., to Gulfport, Miss., and return, for the purpose of attending the meeting of the Mississippi State Medical Association on May 13-15, 1929. Apr. 5, 1929.

Surgeon W. L. Treadway. Directed to proceed from Washington, D. C., to Philadelphia, Pa., and return, in connection with field investigations of public health,—also directed to proceed to Atlanta, Ga., New Orleans, La., San Antonio, Texas, Los Angeles, Calif., and San Francisco, Calif., Portland, Oregon, Seattle, Washington, Leavenworth, Kansas, Kansas City, Mo., and such other points in the above mentioned states as may be necessary, and return, for the purpose of carrying out the provisions of Public Act 672, being an Act to establish two United States Narcotic Farms, and for other purposes. Mar. 19, 1929.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

SENIOR BACTERIOLOGIST

Applications for senior bacteriologist must be on file with the Civil Service Commission at Washington, D. C., not later than April 24.

The examination is to áll vacancies in the Food, Drug and Insecticide Administration, Department of Agriculture, for duty in Washington, D. C., or in the field.

The entrance salaries range from $4,600 to $5,200 a year. Higher salaried positions are filled through promotion.

HEALTH REPORT

During the week ending March 30 there were 131 deaths in the City of New Orleans, with the death rate of 16.0. The following week ending April 6 the total deaths were 149, with a death rate of 18.1. The death rate from pneumonia and influenza for the week ending March 30 had decreased to 16 of the former disease and 3 of the latter.

The following news items, pertaining to activities of the teaching staff of the Graduate School of Medicine of The Tulane University of Louisiana, have been received:

The Semicentennial Meeting of the Louisiana State Medical Society held in New Orleans April 9, 10, 11, 1929, was addressed by:

Dr. C. J. Bloom, "Intestinal Polyposis in Childhood."

Dr. W. R. Buffington, "Ocular Tuberculosis with Report of Cases."

Dr. H. Daspit delivered the memorial address and paid fitting tribute to the deceased members of the organization.

Dr. John Raymond Hume, "Complications of Pyogenic Ear Disease."

Dr. Walter E. Levy, "Clinical Study of Sterility."

Dr. R. C. Lynch, "Sinus Disease in Children."

Dr. Randolph Lyons, "A Few Observations on Transient Auricular Fibrillation."

Dr. H. Theodore Simon, "Infantile Paralysis."

Dr. Sidney K. Simon, "The Whys and Wherefores of Non-Surgical Biliary Drainage."

Dr. H. Daspit addressed the School of Occupational Therapy at the State Hospital, Jackson, La., Thursday, April 11, 1929.

On Wednesday, April 24, 1929, the following addressed the meeting of the Association of Surgeons of the Southern Railway System, of which Dr. E. Denegre Martin was Chairman of the Committee on Arrangement:

Dr. Muir Bradburn, "Fractured Thigh."

Dr. Isidore Cohn, "Abdominal Crises."

Dr. H. Daspit, "Nervous System and Its Relation to Industrial Medicine."

Dr. A. C. King, "Fractures About the Elbow."

Dr. H. Theodore Simon, "Prosthesis."

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor

TO THE ENTIRE MEMBERSHIP OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION:

As your president for the 1928-29 term I have found the work both pleasant and profitable. As far as has been practicable I have visited the component societies and find good work done by all.

I regret that it has been impossible to see each society so ask that you accept the will for the deed. I urge full attendance at Gulfport May 14-16 as is humanly possible, for it is at these meetings that we develop our b i g g e r selves, broaden our vision and increase our capacity for doing good to suffering humanity. May I confidently expect to see YOU there?

W. H. FRIZELL, M. D.,
President of the Mississippi State Medical Assn.

First of all the presidents of the various County Societies should show their zeal by being present at the Gulfport meeting; next, let the secretaries ALL be there as a matter of extreme interest to them and the fraternity will some up before them. They should have a full, concise and written report. Those officers are the mainspring of the State Association—the ground work of the whole scheme.

We shall also expect a full written report from the various committees not only of finished but of unfinished business.

Let all Delegates who have matters before the House of Delegates or parties who wish to bring anything before the Council have these in due form, in writing, with all data complete, so that they may be acted upon promptly and intelligently. These bodies are always busy and any delay will only slow down the program of the regular meeting.

Each section chairman informs me that he has a full program, which on inspection I find very fine indeed. There is in store for those who attend a session of interest and information.

The Gulfport Committee on Arrangements and Entertainment have a real treat for all. Bring the ladies along for their program is even better than ours.

Let's pull together for a full, harmonious and profitable meeting.

Cordially and sincerely yours,

(Signed)

W. H. FRIZELL,
President,
Mississippi State Medical Association.

It hardly seems necessary, as the close of his administration approaches, to introduce our president, Dr. W. H. Frizell of Brookhaven, to the profession of the state. However, it may not be amiss to repeat the s h o r t biographical sketch which the Journal published last June.

Dr. W. H. Frizell is the son of the late Dr. W. H. Frizell and Mary Horton, daughter of Dr. Stephen Horton, of Georgia. The senior Dr. Frizell was a graduate of the New Orleans School of Medicine, now Tulane. He served as Lieutenant and Surgeon in the 12th Mississippi Regiment, C. S. A., and was one of the immortal six hundred who were confined in Charleston, South Carolina, prison in 1865. After the war he practiced for forty-two years at Poplar Creek, Mississippi, where the subject of this sketch was born in July, 1872.

Dr. Frizell received his schooling in the Academy of his native village under the tutelage of the late Dr. J. W. Armstrong. His medical education was had at the University of Nashville. He was graduated from that old institution in March, 1897. In 1901 he received a certificate from the New York Polyclinic in Medicine and Surgery. He practiced at his home village, Poplar Creek, Mississippi, until 1901, when he located in Brookhaven where he has since lived. He has been County Health Officer of Lincoln County for the greater part of the past twenty years. He served for many years as Secretary of the

Tri-County Medical Society, and later as President of that Society.

For several years he has represented the Eighth District in the Council. He is a member of the Southern Medical and American Medical Associations. He has been a member of the medical and surgical staff of the Kings Daughters Hospital in Brookhaven since its organization.

Dr. Frizell's work during the year has measured up to the expectations of those in the Association who have worked with him so long and so agreeably.

THE GULFPORT MEETING

The sixty-second annual session of the Mississippi State Medical Association will be held in Gulfport on May 14-15-16. The local committee on arrangements consisting of W. A. Dearman, E. H. Linfield, and W. P. Sheely announces the selection of the Markham Hotel as headquarters. All general meetings will be held on the Roof Garden of this building. Scientific exhibits will be on the mezzanine floor. As usual the State Radiological Association will meet the evening before the State Association convenes, that is on Monday, May 13, and the place will be the ball room of the Markham.

The luncheon of the Ex-presidents of the State Medical Association will be held in the private dining room at noon, May 15. At 8 p. m., May 15, the annual banquet will be given on the Roof Garden of the Markham. This will be followed by an informal dance.

PROGRAM

Mississippi Radiological Association

Ball Room, Markham Hotel

Monday, May 13, 7:30 p. m.

1. President's Address, W. W. Crawford, Hattiesburg.

2. "Some Interesting Urological Problems," E. H. Linfield, Gulfport. Discussion to be opened by W. L. Britt and F. L. Van Alstine.

3. "Fractures," T. E. Ross, Jr., Hattiesburg. Discussion to be opened by J. W. Barksdale and O. H. Swayze.

4. "The Heart," G. W. F. Rembert, Jackson. Discussion to be opened by J. S. Gatlin and J. B. Howell.

5. "The Modern X-Ray Laboratory," C. R. Stingily, Meridian. Discussion to be opened by J. E. McDill and Cary Day.

Secretary, Geo. E. Adkins, Jackson.

GENERAL MEETING—FIRST DAY

Tuesday, May 14, 1929

Session 9:30 a. m. to 12; 1:30 p. m. to 6 p. m.

Roof Garden, Markham Hotel

OPENING EXERCISES

1. Call to Order, President W. H. Frizell, Brookhaven.

2. Invocation, Rev. R. V. Saylor.

3. Report of Committee on Arrangements, W. A. Dearman, E. H. Linfield, W. P. Sheely.

Section on Eye, Ear, Nose and Throat.

E. LeRoy Wilkins, Chairman, Clarksdale.

1. "Lye Stricture of the Esophagus," D. C. Montgomery, Greenville. Discussion to be opened by H. H. West and E. F. Howard.

2. "Early Recognition of Simple Glaucoma in the Prevention of Blindness," (Lantern Slides), L. S. Gaudet, Natchez. Discussion to be opened by G. H. Wood and A. G. Touchstone.

Section on Medicine

W. A. Dearman, Chairman, Gulfport

1. Chairman's Address, "The Forgotten Doctor," W. A. Dearman, Gulfport.

2. "The Management of Pneumonia in Infants and Children in the Average Home," F. G. Riley, Meridian. Discussion to be opened by T. D. Bordeaux and N. C. Womack.

3. "Syphilis of the Lungs," H. L. Cockerham, Gunnison. Discussion to be opened by G. W. F. Rembert and J. W. Gray.

4. "Achlorhydria with Special Reference to Gall-Bladder Disease," J. P. Culpepper, Jr., Hattiesburg. Discussion to be opened by G. W. F. Rembert and J. S. Ullman.

5. "The Early Recognition aned Treatment of Cretinism," G. Y. Gillespie, Jr., Greenwood. Discussion to be opened by J. W. Lipscomb and H. L. McKinnon.

6. "Coronary Artery Occlusion, with Especial Reference to Symptoms," G. W. F. Rembert, Jackson. Discussion to be opened by A. H. Little and Henry Boswell.

7. "Treatment of the Diabetic in the Home," Seale Harris, Birmingham. Discussion to be opened by F. G. Riley and Chas. LeBarron.

8. "Endocarditis," C. L. Simmons, Hazlehurst. Discussion to be opened by J. S. Ullman and E. B. French.

9. "Acute and Chronic Colitis in Infants and Children," Joe E. Green, Richton. Discussion to be opened by R. W. Burnett and H. F. Garrison.

10. "The Treatment of Primary and Secondary Pneumonia," W. L. Little, Wesson. Discussion to be opened by O. N. Arrington and D. W. Jones.

11. "The Recent Epidemic of Influenza, and its Complications," W. L. Stallworth, Columbus. Discussion to be opened by N. S. Dickson and D. W. Holliday.

EVENING SESSION—EIGHT O'CLOCK

Tuesday, May 14, 1929

Roof Garden, Markham Hotel

To Which the Public Is Cordially Invited.

1. Invocation, Rev. W. A. McComb.

2. Addresses of Welcome: On Behalf of the City of Gulfport, Mayor Joseph Milner.

On Behalf of the Harrison-Stone-Hancock Medical Society, W. A. Dearman, Gulfport.

3. Response to Addresses of Welcome, Henry Boswell, Sanatorium.

4. President's Address, W. H. Frizell, Brookhaven.

5. Annual Oration: "The Physician and the Patient: Their Reciprocal Duties," Alton Ochsner, New Orleans.

GENERAL MEETING—SECOND DAY

Wednesday, May 15, 1929

Session 9:00 a. m. to 12:30 p. m.

Roof Garden, Markham Hotel

Section on Hygiene and Public Health.

C. C. Applewhite, Chairman, Jackson.

1. Chairman's Address, C. C. Applewhite, Jackson.

2. "Modern Methods and Measures in Preventive Medicine," F. M. Smith, Vicksburg. Discussion to be opened by J. W. Lipscomb and L. S. Lippincott.

3. "A Practical Child Health Program for a Rural County," J. B. Black, Murfreesboro, Tenn. Discussion to be opened by F. J. Underwood and H. C. Ricks.

4. "The Correction of Physical Defects of Pre-School and School Children in a Rural County," J. H. Janney, Indianola. Discussion to be opened by N. C. Womack and W. H. Anderson.

5. "Oxyperitoneum in the Treatment of Tuberculous Peritonitis," W. B. McCorkle, Colorado Springs, Colo. Discussion to be opened by H. R. Shands and Henry Boswell.

6. "The Responsibility of the Medical Profession in Handling Venereal Disease Problem," Frank L. Van Alstine, Jackson. Discussion to be opened by W. C. Rucker and E. H. Linfield.

7. "Brewers' Yeast As a Prophylactic and Curative Agent for Pellagra," Paul S. Carley, Belzoni. Discussion to be opened by A. K. Barrier and R. D. Dedwylder.

Section on Eye, Ear, Nose and Throat.

E. LeRoy Wilkins, Chairman, Clarksdale.

Special Session—Gold Room, Markham Hotel.

Wednesday, May 15, 1929

Session 9:00 a. m. to 12:30 p. m.

1. Chairman's Address, E. LeRoy Wilkins, Clarksdale.

2. "Indications for Tonsillectomy," H. L. Arnold, Meridian. Discussion to be opened by W. B. Dobson and D. W. Hamrick.

3. "A Few Observations on the Maxillary Sinus," Edley H. Jones, Vicksburg. Discussion to be opened by Robin Harris and D. C. Montgomery.

4. "Perimetry," Jas. D. Perdue, Mobile. Discussion to be opened by C. A. McWilliams and Fern Champenois.

5. "Nasal Surgery on Allergic Patients," B. S. Guyton, Oxford. Discussion to be opened by R. E. Anderson and W. A. Stevens.

6. "Vincent's Angina," R. A. Clanton, Grenada. Discussion to be opened by G. E. Armstrong and B. S. Guyton.

7. "External Otitis: Its Cause and Treatment," G. E. Adkins, Jackson. Discussion to be opened by N. S. Dickson and H. R. Fairfax.

Section on Surgery.

W. W. Crawford, Chairman, Hattiesburg

Session 2:00 p. m. to 5:00 p. m.

Roof Garden, Markham Hotel

1. Chairman's Address, W. W. Crawford, Hattiesburg.

2. "Acute Pelvic Infection in the Female," A. G. Payne, Greenville. Discussion to be opened by H. R. Shands and J. S. Ullman.

3. "Osteo-Chondro-Sarcoma of Knee," George A. Brown, Water Valley. Discussion to be opened by Frank H. Hagaman and George Street.

4. "The Medical and Surgical Aspects of Goitre," C. F. Dixon, Rochester, Minn.

5. "Diagnosis and Treatment of Bladder Tumors," Paul G. Gamble, Greenville. Discussion to be opened by E. H. Galloway and I. C. Knox.

6. "Caesarean Section," H. M. Mayes, New Albany. Discussion to be opened by J. P. Wall and John W. D. Dicks.

7. "Some Acute Condition within the Abdomen," J. W. Barksdale, Jackson. Discussion to be opened by S. H. Hairston.

8. "Abdominal Drainage," C. C. Hightower, Hattiesburg. Discussion to be opened by H. A. Gamble.

GENERAL MEETING—THIRD DAY

Thursday, May 16, 1929

Session 9:00 a. m. to 12:30 p. m.

Roof Garden, Markham Hotel

Section on Surgery (Continued)

9. "Abdominal Section and Its Consequences," O. N. Arrington, Brookhaven. Discussion to be opened by John Darrington.

10. "Appendicitis," R. H. Foster, Laurel. Discussion to be opened by John C. Cully and T. E. Ross.

11. "Congenital Pyloric Stenosis," A. B. Harvey, Tylertown. Discussion to be opened by S. W. Johnston and E. C. Parker.

12. "Some Diagnostic and Prognostic Blood Indications," Leon S. Lippincott, Vicksburg. Discussion to be opened by A. E. Gordon and W. H. Parsons.

13. "Prostatic Obstruction," W. H. Sutherland, Booneville. Discussion to be opened by S. H. McLean and T. W. Holmes.

WOMAN'S AUXILIARY

Mrs. M. H. Bell, President, Vicksburg.

Mrs. Henry Boswell, Secretary, Sanatorium.

Woman's Club House

Tuesday, May 14—Registration.

Tuesday, May 14, 3:00 p. m.—Executive Board Meeting.

Wednesday, May 15, 10:00 a. m.—Business Session.

Wednesday, May 15, 4:00 p. m.—Auto Ride along the Coast. Garden Party at Gulf Hills.

Thursday, May 16, 10:00 a. m.—Sight-seeing Drive, Golfing at the Country Club.

The South Mississippi Medical Society met in Hattiesburg on March 14th. Their program was as follows:

1. "Pneumonia and Some of Its Complications," Dr. J. W. Stringer.

2. "Intra-abdominal Postoperative Complications," Dr. E. W. A. Ochsner.

3. "Light Therapy as an Adjunct in the Treatment of Carbuncle," Dr. W. P. Gray.

4. "A Paper," Dr. J. H. Musser.

5. "Treatment of Pueperal Eclampsia," Dr. L. B. Hudson.

6. "Ulcer of the Duodenum—Leutic," Dr. E. L. Grubb.

Dr. A. G. Payne of Greenville attended the meeting of the American Association for the Study of Goitre in Dayton, Ohio, on March 25-27. At this meeting Dr. W. H. Parsons of Vicksburg was elected to membership.

Dr. E. W. Holmes of Winona, Mississippi, is specializing on genito-urinary surgery and is associated with his brother, Dr. T. W. Holmes, at the Winona Infirmary, Winona, Mississippi.

Dr. C. E. Burnham, formerly of Bay Springs, has located in Laurel to do ear, eye, nose and throat work.

Dr. B. G. Barentine, having completed a course at the Ear, Eye, Nose and Throat Hospital in New Orleans, has located in Laurel.

Dr. Rufus Johnson, recently an interne at the South Mississippi Charity Hospital, has located in Laurel.

Negotiations for the purchase of the Cranford Hospital in Laurel by the Kings Daughters are pending. If the Kings Daughters buy this hospital, they propose to repair and re-equip the institution and possibly to enlarge it.

The Gamble Clinic, Greenville, Mississippi, announces that Dr. J. C. Pegues, formerly of Atlanta, Georgia, will be associated with their ear, eye, nose and throat section.

Dr. J. M. Dampeer of Crystal Springs who has undergone a serious operation at Mayo Hospital has informed us that he is progressing nicely.

Dr. C. McKee of Hazlehurst was operated on March 28 for gall-bladder trouble. He is reported as doing well.

Dr. L. D. Chapman of Georgetown died recently at the Baptist Hospital, Jackson, following an operation for appendicitis.

The Tri-County Medical Society held its regular meeting at Brookhaven, March 12. Papers were presented as follows:

1. "Ectopic Pregnancy," Dr. G. S. Ramsey.

2. "Influenza and Its Complications," Dr. O. N. Arrington.

3. "Uncinariasis a Factor in Diagnosis," Dr. R. H. Brumfield.

The monthly staff meeting of the Vicksburg Sanitarium was held April 10. Their program was as follows:

1. "Suppurative Cholecystitis," Dr. G. M. Street.

2. "Post-Operative Pneumonia," Dr. A. Street.

3. "Rectro-cecal Gangrenous Appendicitis," Dr. J. A. K. Birchett, Jr.

4. "Tuberculous Meningitis," Dr. H. H. Johnston.

5. Demonstration of Radiographic Studies:

(1) Fracture of the hip.
(2) Fracture of dorsal spine.
(3) Metastatic carcinoma of sacrum from carcinoma of vagina.
(4) Bone tumor of skull, benign.
(5) Subdeltoid bursitis.
(6) Duodenal ulcer.
(7) Aortic aneurism.
(8) Tuberculosis of lung.

The Homochitto Valley Medical Society held its regular quarterly meeting in Natchez on April 11. The following papers were presented:

"The Relationship of a Full Time Health Department to the General Practitioner," Dr. B. D. Blackwelder.

"The Use of in the Diagnosis of Antrum Disease," Dr. L. S. Gaudet.

After general discussion on the subject of the advisability of establishing a state medical journal, the society went on record as being opposed to any change in the present method of publication, at the same time sending its delegates to the state meeting uninstructed.

The North Mississippi Six County Medical Society met in Oxford April 17. In the forenoon two papers were presented on "Caesarean Section," one by Dr. C. M. Speck of New Albany, the other by Dr. H. R. Shands, of Jackson. In the afternoon their program was as follows:

"Bronchoscopy and Esophagoscopy," Dr. Wm. J. Greenfield, Memphis.

"Influenza," Dr. D. R. Moore, Byhalia.

"Operation in Acute Mastoiditis," Dr. Robin Harris, Jackson.

"The Opportunity and Responsibility of the Doctor of Today," Dr. Felix J. Underwood, Jackson.

The Delta Medical Society met in Drew, Mississippi April 10. Their program was as follows:

1. "Benign Hemorrhage of the Uterus," Dr. J. Preston, Greenwood.

2. "Pneumonia," Dr. E. R. McLean, Cleveland.

3. "Value of Sedimentation Test in Infections," Dr. R. C. Thompson, Greenville.

4. "Infant Feeding," Dr. Sarah Ruth Dean, Greenwood.

5. "Complications Following Gall-Bladder Surgery," Dr. H. A. Gamble, Greenville.

6. "Blood Transfusion as a Therapeutic Measure in Children," Dr. Ed. Clay Mitchell, Memphis.

BOOK REVIEWS

Bacteriology, General, Pathological and Intestinal: By Arthur Isaac Kendall, B. S., Ph.D., Dr. P. H. 3 ed. rev. Philadelphia, Lea & Febiger. 1928. pp. 733.

This third edition of a standard work on bacteriology has been brought very completely up to date and contains most of the new ideas about bacteriology in general. While the book is not detailed enough in some respects for the purposes of specialists in this field, the casual worker or reader will find it broad enough. Professor Kendall is maintaing his usual high standards in this edition. The reviewer would like to disagree with Professor Kendall in his statement regarding the Kahn reaction. While it is a recognized fact that the Kahn reaction is a reliable one and well worth using, it would seem that this test should be used to supplement the Wassermann reaction and not to supplant it, as suggesed by Professor Kendall. In this I think that the majority of experienced laboratory workers assuredly agree. As for the simplicity of the Kahn reaction, the reviewer feels that it is not so very simple as pictured and not at all "fool-proof," as many seem to think. In searching through the book, the reviewer could find no mention made of the Leishman-Donovan bodies, the commonly accepted causative agents of granuloma inguinale. Many of the new books in which one would expect to find mention of such things, do not give any information on this subject. In as much as granuloma inquinale has been demonstrated to be a common infectious condition in and about New Orleans by local workers and in various portions of the United States, it would seem that more attention would be given to the subject in any complete bacteriologic or pathologic work.

S. J. LEWIS, M. D.

Surgical Treatment of Malignant Disease: By Sir Holburt J. Waring, M. S., M. B., B. Sc. (Lond.), F. R. C. S. London, Oxford University Press. 1928. pp. 667.

It is with pleasure that I attempt to make a few comments on a book that is so ably written. To undertake such a gigantic task and present the material in such a simple manner is to me an outstanding achievement. The author does not attempt to go into the minute microscopic pathology as in other texts, but holds to the clinical aspect which will help the good, every-day surgeon in his diagnosis. When dealing with malignant tumors it is impossible to classify to suit the opinions of all pathologists, but he has fought shy of this and held fast to basal facts. His system, including the description by anatomic classification, the minuteness of detail and the extensive bibliography is excellent. The opening chapter of the book is his Bradshaw Lecture, delivered at the Royal College of Surgeons of England, Dec. 14, 1921, dealing superficially with the experimental work of Gye and Barnard, and under eleven headings, with the important factors necessary to consider before expressing a view as to probable success or non-success of surgical operative treatment. The principles outlined in this chapter are more or less held to in the discussion in each chapter with the addition of prognosis, including the opinions of others throughout the world. As a concluding remark, I should recommend that all surgical diagnosticians and operators read this book.

EMILE BLOCH, M. D.

Handbook of Microscopial Technique: Edited by C. E. McClung, Ph.D. New York, Paul B. Hoeber Inc. 1928. pp. xiv+495.

This handbook, the production of twenty-four contributors, aims to meet the needs both of beginners in microscopial technique and experienced workers desiring a compact treatment of various specialized procedures. "It is assumed that the book will be of interest particularly to workers in bacteriology, botany, cytology, embryology, histology and pathology, but the presentation of general methods in Part I makes it useful to any student of microscopical anatomy."

The 35 pages of Part I are devoted to discussion of generalized methods of preparing materials for study. Part II, covering about 450 pages, deals with the specialized techniques employed in: microdissection, microinjection, vital and supravital staining, bacteriology, botany, cytology, embryology, histology and protozoölogy. It concludes with three chapters on fixation, staining and "miscellaneous," which could have been placed to greater advantage in Part I.

The individual chapters and chapter divisions are written by investigators in whose researches the specialized methods have been employed, and in many instances originated. In consequence, one interested in the application of the methods here described will find an authoritative guide in Part II. It is to be regretted, however, that the extent of the work over so broad a field has necessitated a limitation of the scope of some of the chapters. In histology, for example, the special methods are limited to: red blood corpuscles, leukocytes, bone, dental tissues, intercellular elements of connective tissue, muscle and electric organ, neurological technique, neuroglia and microglia. The book is well made, conveniently arranged typographically and contains a good index.

HAROLD CUMMINS, Ph.D.

Diseases of the Eye: By C. W. Rutherford, M. D., F. A. C. S. New York, D. Appleton & Co. 1928. pp. 404.

The author is to be congratulated on this first edition of a volume which fills a needed place in American Ophthalmology. No intermediate text has recently been written in this country between the larger volumes of Ball and de Schweinitz, and the more condensed work of May, which incidentally the present volume may succeed. The subject matter is reasonably complete and very practical, the style simple and readable, the illustrations excellent, and the index comprehensive.

The anatomy and more frequent diseases of the lid are adequately discussed. The surgical treatment is perhaps described at greater length than necessary, because the ophthalmic beginner, for whom the book is essentially written usually performs but few Tansley-Hunt or other similar plastic operations, which the author describes in detail, during the first half of his career.

Diseases of the conjunctiva are rather briefly described, and the more frequent forms of conjunctivitis, such as catarrhal and seborrheic, could well have been discussed at greater length.

The rather large group of corneal affections characterized by a variable loss of substance, very slow healing and negative explanatory bacterial findings, usually classified as "herpetiform" are not correlated by the author. The extra ocular causative factors are not described nor are the benefits obtainable by physio therapy.

The author is to be complimented upon the simple and effective manner in which the chapters on visual fields, extra ocular muscles, and reflection are presented. Greater detail in the modus operandi of subjective testing, however, would have apparently been of service to the average ophthalmic student whose ability in prescribing efficient and comfortable glasses is unfortunately often limited.

Many of our modern conceptions are incorporated in the chapter on the uveal tract. Dr. Rutherford, like other text-book authors, does not describe in sufficient detail the importance of personal hygiene, in its relation to secondary involvement of the eye and especially uveal tract. Let us not forget that our living habits to a large degree determine our resistance to disease and in an emergency, such as secondary uveitis, often decides the fate of the eye, irrespective of the attacking organism or where it comes from.

Most of us memorize too much and reason too little, which may be one of the reasons our patients do not get well quicker. The objective findings contained in the various tabulated diagnoses given by Dr. Rutherford and other authors vary so greatly and are so seldom seen as pictured, that I doubt their value.

The chapter on intra-ocular tumors and industrial injuries are well conceived and executed. One is often surprised and disagreeably so at the ophthalmic tragedies that result from ignorance on these subjects. A chapter covering the eye in general diseases and one describing modern equipment such as the slit light and corneal microscope, sterocampimeter, and light therapy, would have obvious advantages.

In conclusion, I feel that the beginner in ophthalmology will make no mistake in purchasing this book which contains a great amount of practical information simply expressed. It deserves recognition not only because of its merit, but also because an efficient American volume of this type should attain more than one edition.

CHAS. A. BAHN, M. D.

Recent Advances in Chemistry in Relation to Medical Practice: By W. McKim Marriott, B. S., M. D. St. Louis, The C. V. Mosby Co. 1928. pp. 138.

This book is a series of lectures given by the author at the San Diego Academy of Medicine. No one is perhaps better qualified to do this than Doctor Marriott, as he is an outstanding example of one who is highly trained in the laboratory side of medicine as well as being a most able pediatrist.

The lectures are primarily intended to make clear such fundamental consideration as the atom, osmotic pressure, colloids, etc. He also feels that a better understanding of these subjects clarifies such phenomenae as acidosis, alkolosis, blood chemistry, foods and metabolisms, and endocrines, which he discusses most ably. Under this discussion he considers symptomatology and treatment of acidosis and alkolosis.

This series of lectures are strongly recommended for anyone wishing to obtain a better understanding of the recent advances in chemistry as applied to modern medicine.

JULIAN GRAUBARTH, M. D.

Diabetic Surgery: By Leland S. McKittrick, M. D., F. A. C. S., and Howard F. Root, M. D. Philadelphia, Lea & Febiger. 1928. pp. 269.

In the preface to this volume the authors state that "insulin has placed a new responsibility upon the surgeon." They call attention to the fact that "surgical complications have replaced coma in importance, so that the surgeon is faced with the care of a group of cases requiring special consideration."

In a foreword Dr. Daniel F. Jones makes a statement: "It is probably true that no group of cases have been so neglected surgically as the diabetic, and when we consider that at least 25 per cent become surgical problems it would seem that they deserve more consideration than they have received."

The preface and this foreword by Dr. Jones give sufficient reason for the publication of this volume.

The quotation given below, taken from the foreword by Dr. Elliott P. Joslin, should be sufficient to interest medical men as well as surgeons in this contribution.

"What a blessing it has been to have two young zealots working over my cases, striving to make the result of each fresh surgical encounter more successful than the last, and now it gives me pleasure to see their experience made available for all."

No word of praise is too extravagant in appreciation of the stupendous amount of detail work which the authors have done in order to present in a concrete useful fashion their knowledge. The average surgeon and practitioner who sees only the occasional case of diabetes must have a handy reference which is dogmatic and authoritative in its expression. This volume meets the demand.

In the first chapter, devoted to the incidence of surgical diseases, attention is called to the fact that the clinical character of diabetes is changing—cases are diagnosed earlier—life is prolonged—and complications may seem to occur later, due to prolonged life.

The authors state that the surgeon had only a "speaking acquaintance formerly, only peremptory surgery was done; now, for the vigorous and optimistic patient the best that surgery, as well as medicine, has to offer is demanded."

The authors emphasize the fact that surgical complications replace coma in importance since insulin has come into use.

This little volume is valuable because it represents personal observations in a well conducted clinic. It emphasizes the need for co-operation and intelligent understanding of the patient's condition.

The surgeon after reading the statistics in this book can no longer consider diabetes a medical disease; of 2179 cases treated by Joslin, 507 were operated upon and 285 others were surgical diseases.

A special chapter is devoted to the diabetic as a surgical risk. Emphasis is laid on the importance of obesity, age, infection, cardiac-vascular diseases and many other conditions too numerous to mention in a brief review.

The chapter devoted to problems of differential diagnosis and treatment, both pre-operative and post-operative, contain clear, concise and unmistakable delineations of the many conditions to be differentiated.

This chapter should be carefully studied by all likely to be contracted with these cases. For the surgeon not fortunate enough to be associated with expert internists, who are interested in the management of the diabetic, this chapter should be of inestimable value.

The chapter devoted to anesthesia, in which due consideration is given to the effects of various anesthetics on the diabetic patient with conclusions by the author as to the anesthetic of election for the diabetic operation, is interesting and should be carefully read by surgeons, anesthetics, and internists. The authors remind us that the same effects which are observed in the normal individual, occur in the diabetic, exaggerated in proportion only to the degree of the metabolic disturbance.

In the chapter devoted to diabetic gangrene the authors have laid great stress on careful examination and differential diagnosis of those conditions which produce deficient blood supply.

The authors, when considering the prognosis of the diabetic patient who develops gangrene, remind us that these patients are not unlike a group of patients who of the same age develop cancer. "Without treatment either is usually a fatal disease."

The effects of infections are stressed. Statistics are given with reference to mortality following operation. The methods suggested for the handling of the diabetic patient with gangrene or threatened gangrene contain suggestions which might well be followed by everyone.

Chapters are devoted to major and minor amputations, infections, such as carbuncles, and emergency abdominal surgery.

It is not too much to say of this book that it should be in the hand of every surgeon and internist interested in the diabetic patient. It should prove to be a valuable reference work because assimilation of its contents by the reader will enable him to make the vast experience of the authors readily available for his own use.

Time and experience may change our ideas, but this volume should stand out as an expression of the best that is known today on this subject.

ISIDORE COHN, M. D.

Diseases of Children: By Henry Dwight Chapin, A. M., M. D., and Lawrence Thomas Royster, M. D. 6th ed. and rev. New York, Wm. Wood & Co. 1928. pp. 675.

This is the sixth edition of the work first published in 1909 by Chapin and Pisek. It is a complete ready reference work on all subjects dealing with children's diseases. The absence of bibliographies at the end of chapters seems to be the only weakness of the book.

Illustrations are numerous and there are some very good colored plates, especially those showing the various exanthemata. An appendix gives tables of weights, caloric values of foods, etc.

A valuable book for general practitioners and pediatrists.

L. VON MEYSENBUG, M. D.

Child Health and Character: By Elizabeth M. Sloan Chesser, M. D. New York, Oxford University Press. 1927. pp. 204.

The book should be read by all interested in the child and its problems. Its real merit lies in the excellent practical physiological approach to the subject. The author has undoubtedly had a large experience in dealing with child problems and her ideas concerning them are presented in a manner both interesting and instructive. The chapter devoted to "Sickness in the Nursery" is fragmentary enough to puzzle the lay reader and would have been much better left out of an otherwise good book.

I. L. ROBBINS, M. D.

Proctology: By Frank C. Yeomans, A. B., M. D., F. A. C. S. New York, D. Appleton & Company. 1929. pp. 661.

This new text embodies all that is latest in the specialty. Each subject is dealt with in the orderly sequence of etiology, pathology, symptoms, diagnosis, complications, prognosis, and treatment. Recognizing that good results may be obtained by various methods of treatment, the author describes the different methods, giving fair and unprejudiced comments on the relative merits of each, and indicates plainly, but without undue emphasis, the method of his choice. The book is thorough and includes chapters on related subjects such as Coccygodynia. The section on Amebic Dysentery is aptly handled and illustrates the care which Yeomans gave to the preparation of his book.

The subject matter is excellently presented, and the style is lucid. Its colored plates and the numerous illustrations are clear and well selected. The book has a wide field of usefulness and will fulfill the purpose for which it was intended.

MAURICE LESCALE, M. D.

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